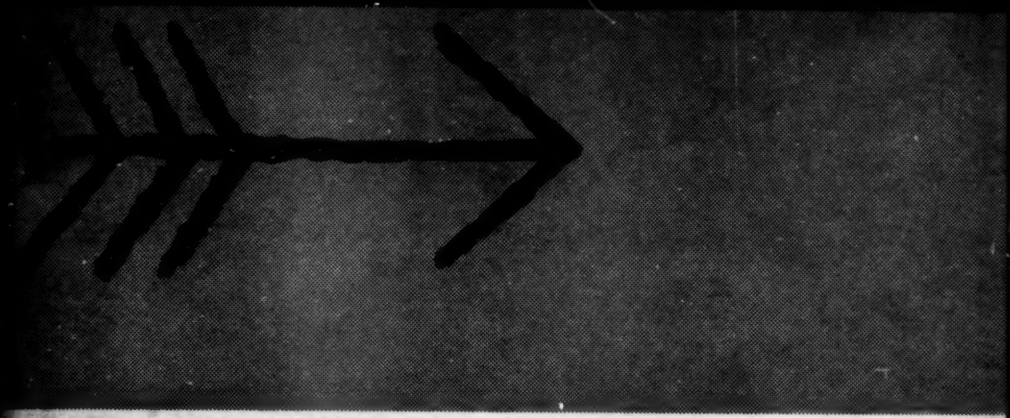
# TRENDS IN EDUCATION



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**OCTOBER 1971**

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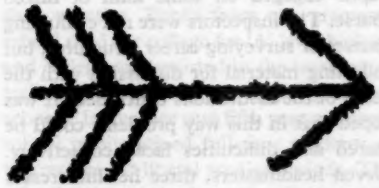

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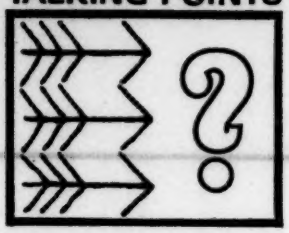
# TALKING POINTS



**By Question Master**

## Staying on for what?

A steady increase in the number of pupils who remain in school for a fifth year of secondary education or enrol at 15+ for full-time studies in a local college of further education is a well-known educational trend. How much firm knowledge do we possess about their motives for doing so? Experience in many schools suggest that the trend towards staying on is largely governed by the opportunities available for taking external examinations.

As it is hardly likely that the quest for examination success is undertaken for its own sake, it may be assumed that what counts is the work prospects and career opportunities that success opens up. On the other hand some school examinations seem to be taken not so much because they provide career opportunities in themselves but as preparation and practice for tackling future examinations. It has been claimed for a hundred years or more, that preparation for an examination can evoke an orderly and industrious approach to school work, challenging the pupil to concentrate and to plan his use of study time. There is also, perhaps, a technique involved in taking an examination which can be acquired by practice, and therefore it may be necessary to devise a series of steps on the way to the type of examination which *does* open the doors to jobs and further education.

Two of HM Inspectors recently studied the range of examination opportunities that actually existed for pupils of about 16 and over in a particular area of England. They chose a fairly compact cluster of schools—seven in a town, where there was also a college of further education and seven in the surrounding rural area. The schools were of various types, having in common only the fact that they had sent on pupils as full-time students to the college, or had pupils engaged on some kind of linked course. The inspectors were not evaluating courses or surveying career structures, but collecting material for discussion with the heads of the institutions concerned. It was hoped that in this way problems could be shared and difficulties faced collectively. Eleven headmasters, three headmistresses and the principal of the college took part in the discussion which was frank and co-operative.

In these schools and in the college of education there were 1,164 full-time students of fifteen years and over. They were distributed as shown:

| | *Fifth year* | *Lower Sixth* | *Upper Sixth* |
|---|---|---|---|
| County Secondary Schools | 250 | 29 | 7 |
| Grammar Schools | 283 | 213 | 162 |
| College of FE | | 220 | |

With the exception of a few pupils who remained at school because they lacked maturity, or who were being helped to overcome a particular disability or handicap, all pupils in the fifth and subsequent years of the schools were engaged upon a course that led to examinations of one kind or another, but there were many pupils leaving school at the end of their fourth year without examination qualifications; some of these entered the college of further education to engage upon pre-apprenticeship and other courses.

When discussion with the heads of schools took place, they revealed different expectations of what would happen after the raising of the school leaving age. Some thought that only 25 per cent of those who would then be required to stay on at school would not be suitable for examination work; others that 50 per cent would be a more realistic figure. It was suggested that

entry for single workshop subjects would be within the reach of all pupils.

There were working links already in existence between four of the secondary modern schools and the FE college—two for the purposes of examinations in commercial subjects and two for non-examination work in commercial training and workshop practice. Pupils from one grammar school used the college for 'A' level biology and college staff assisted in the teaching of technical subjects in two boys' grammar schools. In another case fifth year grammar school pupils joined full-time students at the college for liberal studies periods. The schools expressed a hope that there would be further extension of these linked courses when the leaving age was raised. It was felt that in certain craft subjects the type of teaching given in pre-apprenticeship and other courses for young workers in the college could profitably be developed in some schools with the help of college staff. The need for co-operation between school and college, particularly over the education of fifteen-year-old boys, was emphasized on all sides.

All the schools were engaged on work for the certificate of secondary education. Only in mathematics, however, did entries for this examination exceed the number entered for 'O' level in the GCE (257 against 217). In the secondary modern schools there were CSE entries in about seventeen subjects and in the grammar schools entries were made in about eighteen subjects at 'O' level and sixteen at 'A' level. In four schools somewhat surprisingly pupils were entered for both CSE and GCE examinations in the same subject, on the same occasion.

At present pupils make their choices about examination courses a year earlier in the secondary modern schools than they do in the grammar schools. It seemed usual in the former for pupils to enter an examination or non-examination form in their fourth year after opportunities for consultation with staff and careers officers. Arrangements were sufficiently flexible to accommodate those who changed their minds and decided to stay for a further year. When the school leaving age is raised the point at which choices are made will presumably be the same in all schools.

The basic core of subjects studied was roughly similar in all the schools although a foreign language was part of this core only in the grammar schools. Most secondary modern pupils were entered for about seven or eight subjects in CSE and most grammar school pupils for a similar number in GCE 'O' level. The GCE entries from the secondary modern schools were not numerous and most of the CSE entries from the grammar schools were in French and mathematics, subjects in which it was presumably considered more difficult to achieve 'O' level passes. It is interesting to note that CSE was also regarded in some grammar schools as providing more interesting material to study, for instance in contemporary English literature. The less intensive pressure exerted was another factor mentioned to the advantage of CSE. There was a feeling amongst the heads that employers and parents still needed to be better informed about the purpose and value of the Certificate of Secondary Education.

Apart from pupils taking up the pre-apprenticeship courses in the department of building and engineering at the end of their fourth year, most pupils entered the college of further education after spending five years in their secondary schools and it was usual that on entry they had already obtained some examination success either in the certificate of secondary education or general certificate of education examinations. These qualifications, together with a college test and interview, were taken into consideration when a student made a choice of the courses offered. The courses were: a one or two year secretarial course, which provided general training for secretarial and clerical work; an advanced level business studies course, which involved the study of advanced level subjects while improving shorthand and typewriting skills; a two year course for the national diploma in business studies; one or two year courses for the ordinary level examination of the General Certificate of Education; an A-level course; a pre-nursing course and courses in domestic science and home economics.

When all pupils remain in school until the end of their fifth year it can certainly be predicted that in this area at least entries for CSE will be considerably increased. It is less certain that there will be more GCE 'O' level entries. In some cases CSE was regarded as useful preparation for 'O' level and pupils were taught in one group, some going on to 'O' level afterwards; in other cases the groups preparing for the two examinations were kept entirely separate. It was interesting to note that all schools entered pupils for examinations of one kind or another in English, mathematics and history, all but two in geography and all but five in biology. There is the likelihood that courses jointly conducted by school and college will grow, but it cannot be said that such a development would necessarily lead to larger enrolment for craft and technician courses at the college. That would also depend on local employment opportunities and the attitude of employers. The schools' fifth year work in craft subjects will probably be influenced by the kind of approach that has hitherto been found in the college.

Much emphasis has been laid on the reconstruction of the secondary school curriculum and reforms of teaching methods necessary in the interests of those who will be staying on after 1972; but are not the influences exerted on pupils' response by examination opportunities often underestimated? There is much evidence that pupils respond to the challenge of tests and examinations, particularly if preparation is made at the pupils' own pace and in subjects of their own choice. Most schools in the area of this survey were participating in the Duke of Edinburgh's award. Much depends on the nature of the examinations, and it is clearly important that pupils in the upper forms of secondary schools, whatever their academic ability, should learn the self-discipline of unsupervised work. Individual research and enquiry, geared towards some positive attainment of a material kind, whether a report or an artefact, often take a firm hold on the energy and industry of a pupil. Curriculum development which takes advantage of this leaning towards independent work in the adolescent, and to the opportunities offered by inter-disciplinary enquiry and Mode III CSE examination, may have a major impact on success in raising the school leaving age.

## The Human Factor

Out of the post from Calcutta, much worn, torn and otherwise distressed, came a copy of a book with the intriguing title, *The Human Factor In Education** by Mr Austin D'Souza.

Post for this kind of thing is evidently slow from India, for according to the book's imprint it was published in 1969.

Mr D'Souza, who is Inspector of Anglo-Indian Schools in West Bengal, writes: 'Educational salvation lies not in a streamlined system of educational organisation, tricked out with all the modern paraphernalia of learning, but in the personal, human factor which underlies a modern educational system and makes it tick. It is mainly because this human factor in education is apt to be either forgotten, neglected, or taken too much for granted, that the rapid increase in the number of schools and the noticeable improvement in buildings, equipment, curricula and text-books have not been accompanied by a commensurate improvement in the quality of the education imparted to them'.

Which is a long-winded way of saying, it's the teachers that count in India, just as they do here.

The author also believes that the worst educational heresy in modern India is that of 'bricks and mortar', a belief that these "are more necessary in the sphere of education than flesh and blood, mind and spirit; that school buildings are more important than the men and women who teach in them'. We too might remember this.

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* Orient Longmans, 15 rupees.

# Teaching in Middle Schools

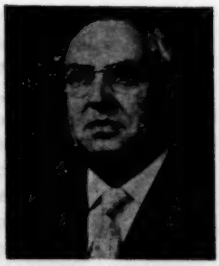
*There are already over 300 middle schools in England and Wales. The number will increase considerably over the next 10 years, especially between now and 1973.*

*Education Pamphlet No 57* (Towards the Middle School) *discussed many of the issues that these schools face and Education Survey 8* (Launching Middle Schools) *described the preparatory stages and early years of some schools in the West Riding of Yorkshire. The two articles that follow, about the teaching of mathematics and science, describe in more detail the sort of work to be done in them.*

*It is hoped that they will interest all who are concerned with the education of children between 8 and 13 years of age, whether in middle schools or not; for the fundamental educational requirements of the children are the same whatever the age range of their school fellows. Middle schools have the advantage that they can give their undivided attention to this group.*

# Mathematics in the Middle School

D. T. E. MARJORAM



**D. T. E. Marjoram** is a member of HM Inspectorate, North Midland Division.

In mathematics until recently the first year of the secondary school course was a time for consolidation and extension of arithmetic taught in the primary school and for the introduction of simple ideas in algebra and geometry. The work in arithmetic included the properties of whole numbers and their factorization, vulgar and decimal fractions, percentages, mensuration, practice methods and miscellaneous harder applications of the four rules. Algebra, treated mainly as a generalisation of arithmetic, was introduced by simple formulae, equations or 'think of a number' problems, while geometry, developed through regular solids and plane shapes, included the fundamental notions of point, line, plane, angle, congruence and the construction of simple loci with ruler, compasses and set square. This pattern is still followed in many secondary schools but in some is undergoing considerable modification; indeed in a few it has been completely revised. There are two main reasons for the changes. In the first place with the growth of new approaches to primary school mathematics more children encounter simple ideas in geometry and elementary graphical work before they reach the secondary stage. Secondly, various ideas in 'modern mathematics' previously encountered only in university and sixth form courses, but now thought by some to be appropriate at a much earlier stage, are filtering downwards. In fact some of these notions, such as the language and notation of sets, mappings, multibase and modular arithmetics, elementary probability and statistics, and the use of desk calculating machines are encountered in many primary schools.

There has been a tendency to move away from the idea that school mathematics consists in the learning of specific skills. This trend is to be welcomed in so far as these skills were developed to such a level that only the able were successful, while the less able were frustrated

by slowness and inaccuracy. Nevertheless, there are important mathematical skills which, like reading, must be learned and practised after *some* reasons for their value and *some* understanding of why they work have been reached. Also, there is need to systematize some of what has been learned unsystematically and to make sure that no important mathematical ideas have been omitted.

There has emerged also new thinking about teaching method. The experimental belief, developed in the Schools Council *Curriculum Bulletin No* 1, that children should discover for themselves, because they will enjoy and understand more by so doing is a sound one. To be *told* a fact is a poor, unmemorable substitute for the magic moment of insight when we grasp it ourselves. Of course we have neither time nor skill to ensure our pupils discover everything, but if we care about their future attitudes to the subject we must try to see that they have the experience occasionally.

Indeed, it could be that method is more important than content; certainly the investigational approach can be applied as well to traditional as to contemporary syllabuses. There is a certain amount of misunderstanding about 'investigational work'; it is sometimes thought synonymous with 'practical work'. In fact, while young pupils' investigations may involve actual material and practical experimentation, it should be remembered that for much investigation, pen and paper only are required. Of course, the practical and the abstract go hand in hand at *every* stage, but with increasing maturity the theoretical element should increase. The average 9 or 10 year old, for instance, might well spend not less than half his time with pencil and paper.

## The Nature and Function of Mathematics

It is perhaps worth considering briefly the nature and function of mathematics. When children measure the school hall, or survey the school field, or plan a traffic count they are essentially engaged more on a *scientific* than a mathematical enquiry. The mathematics begins when the situation is symbolised in numerals and algebraic terms, progressing as these are manipulated as symbols, in the language of algebra, to yield new relationships such as equations and inequalities. One abstracts from experience, manipulates almost 'unthinkingly' and translates the symbolic result back into experience. To wield real power the mathematician must be able to manipulate symbols easily enough to maintain his grasp of the whole process—yet this essential facility is often denigrated as 'mere' manipulation, 'mechanical' arithmetic etc. (Though one does not scorn the pianist's keyboard exercises or the cricketer's net practice.)

As to the function of mathematics there are three essential features:

i. its utilitarian role: mathematics as a tool; the language of science,
ii. the science of number and space: the discovery and invention of relations in number and in both the natural and man-made worlds,
iii. a structure of clear, logical argument proceeding deductively from premises to conclusions: this may be related to (ii), but may be in no way related to the 'real world' at all, though the argument might well have arisen from, or be related to, a problem derived from the world in which we live.

In the middle years we shall be mainly concerned with (i) and (ii) but we must have prepared a 'whetstone' for the wit of the really able child.

Mathematics is a young man's game; gifted children of 12 and 13 sometimes exhibit real precocity in the subject.

## Language and Symbolism

The crucial part played by language in the child's intellectual development in general—and no less in his mathematical development in particular—is not always fully appreciated. It has always been a mark of the good class teacher that he educes ideas by question and discussion. This is just as necessary when children are doing practical work individually or in small groups. The child may spot a pattern or discover a relationship, but the idea becomes consolidated and operational for him when he has verbalised it. One is reminded of St Augustine's reply to the question 'What is Time?'—'If no one asks me, I know: but if I wish to explain it to one that asketh, I know not.' It is in this development of language that the good teacher plays his most critical role. He discusses the discovery or asks the question which may lead to it. He gauges the response and intellectual leaps of which each particular child is capable. No less important, he forbears from saying or telling or expecting too much. By the appropriate word and gesture he coaxes the slow, impels the reluctant and challenges the able. Moreover, he must gradually bring the child to use language with more precision than elsewhere, for in mathematics, terms are less ambiguously used and more strictly defined than in any other discipline.

Although pure language served to take the Greeks a long way in their mathematics, verbalisation is not enough. Indeed it is at the next obstacle—the hurdle of mathematical symbolisation—that so many fail. The point was well made by a recent experiment in which 100 eleven-year-olds failed to achieve 40% in a simple but written objective arithmetic test. When a similar test was later conducted purely *verbally*, only 30 failed to do better than that. Many of these children could do the mathematics mentally and verbally; it was the symbols that defeated them. Japanese characters are suggestive of meaning: numerals like the Roman III proclaim their 'three-ness', but few of the letters and numerals used by our children are so iconic. The notation used to describe lengths of 1,000,000 and 100,000 metres certainly does not suggest visually their tenfold ratio. Still less obvious is the fact that $10^{62}$ is a million times greater than $10^{57}$.

Some children will not be confident with numbers and numerals (let alone their manipulation) by the beginning of the middle school, and of this, sympathetic and patient account must be taken. Of course, the majority will not have such difficulties, and by the age of eight should be very familiar with number pairs and trios up to 10:

$7 + 2 = 2 + 7 = 9$; $9 - 7 = 2$, $9 - 2 = 7$

—and have extended these to 20.

They will also know the number line patterns:

$10 + 7 = 7 + 10 = 17$; $17 + 10 = 27$ etc;

$4 + 8 = 12$, $34 + 8 = 42$, $4 + 58 = 62$

and the corresponding subtraction patterns.

The commutative property of multiplication should also be known operationally. In fact, the knowledge of such facts as for example, $5 \times 9 = 9 \times 5$, will halve the labour of learning tables.

Apart from this, the eight-year-old will have begun to apply this knowledge to the measure of length, weight, time, area and perhaps even volume. He will also know a good deal about shapes. The *able* eight-year-old will have travelled far beyond all this and may well be in possession of such techniques as long multiplication and division etc.

## Abstraction and Generalization

If the numerals *1*, *2*, *3* etc. cause problems for some, the pronumerals *x*, *y*, *z* etc will be much less familiar still. A whole new degree of abstraction is involved.

Words and symbols themselves are, of course, abstractions from reality. When the child *picks out* the fact that all members of a certain set of objects are green, he is *abstracting* the notion of 'green-ness'. The notion of number is, however, one degree harder. For 'three-ness' is not an attribute of a *thing*, but of a *set* of things. Moreover, it can not be abstracted until many sets, with the same attribute or cardinality, have been observed. The mental process of abstraction begins at a very early age—well before most children go to school. Upon our ability to abstract depends our ability to read and figure and to organize ourselves generally. While abstraction is a picking out from what is perceived, the process of generalization is the attribution of a property, possessed by what we *can* see, to others that we cannot.

For example, from $2 + 3 = 3 + 2$ and similar facts, we abstract the pattern $a + b = b + a$ and then generalize by asserting its truth where a and b are *any* numbers—though clearly, we could never actually check this for *every* possible pair of numbers.

From the pattern

$$1 \times 3 + 1 = 2^2$$
$$2 \times 4 + 1 = 3^2$$
$$3 \times 5 + 1 = 4^2$$

we hope that our pupils will abstract the pattern

$$n(n + 2) + 1 = (n + 1)^2$$

—and then wonder whether it is generally true for all n.

One or two may even spot that $(n - 1)(n + 1) = n^2 - 1$ is another form of the same generalization. Indeed, we should encourage such intuitive leaps in number patterns and geometrical situations but remember that some children will find it far more difficult to make generalizations in symbols than in words.

We often fail to realize that while generalization depends on the ability to abstract but *not* vice versa, nevertheless like abstraction, the propensity to generalize begins very early indeed. If a dog nips Ben, he soon concludes that *all* dogs are bad. Later he may claim that since, 5, 13, 17, 29, 37 are all expressible as the sum of two square numbers, then all primes divisible by 4 with remainder 1 behave likewise. Later still, he may conclude that since the product of two natural numbers, say two and three, can be found, then so likewise may the product of *any* two real numbers. Thus the capacity to generalize is a necessary but not a sufficient condition of the mathematician. For the real mathematician having made his generalization, will want to test and prove it. Most of our middle school pupils will begin to make simple algebraic generalizations, but here and there an embryo mathematician will start to question the obvious, and be ready to test and examine critically his

own generalizations—to look for the counter example. We must not fail to recognize him.

Though rational processes will still be over-influenced by appearance, nevertheless intellectual capacities to abstract and generalize will develop rapidly during the middle school phase, and the beginnings of 'real mathematics' is perhaps one area in which such growing skills are most effectively exercised. The success of the middle school might, in fact, depend upon its willingness to recognize this, and upon its capacity to cope with the pedagogical implications.

In this matter of abstraction some would go much further and, indeed, some contemporary 'secondary' schemes include a substantial amount of abstract mathematics even for the 11 and 12 year olds. Some feel that notions of structure should be introduced at an early stage: that children should be made aware, quite early, of, for example, the use of set notation and the properties of abstract groups, since these ideas are at the very heart of mathematics. Others feel that the significance of such things can only emerge in the light of varied mathematical experience and are thus better left to a much later stage. As yet there is very little evidence to support either point of view. At the same time, such aspects of structure as are useful, time saving and operational, should undoubtedly be discussed. As we have said, explicit knowledge of the commutative property of multiplication halves the number of multiplication facts to be learned. An explicit knowledge of the distributivity of multiplication over addition is essential to an understanding of the process of long multiplication, expansion of brackets, squaring of binomials and other processes. As examples of neutral and inverse elements arise they should clearly be noted. Defining the universe of discourse, simplifies and clarifies what might otherwise seem amorphous and vague.

## Content

What are the important mathematical ideas for the middle school? Bearing in mind the range of age and ability likely to be found in an 8–12 or 9–13 middle school, it is clearly impossible to prescribe a detailed programme. However, there are some things which most children should have learned by 13. These will certainly include the following:

1. some facility with calculation and simple algebraic manipulation;
2. an ability to approximate sensibly;
3. a readiness to employ and interpret graphical methods of representation;
4. a knowledge of shapes, symmetry and similarity;
5. a notion of limiting processes;
6. familiarity with the more elementary ideas in statistics and probability.

By 13 too, most children will have acquired considerably increased ability to observe order, identify patterns, abstract relationships and to formulate and manipulate them. A few children may even have begun to grasp the notion of proof—the quintessential idea that mathematics is about premises, arguments and conclusions.

Expanding these points, we should expect that by 13, most children will have become facile with long multiplication and division, and perhaps have learned to perform these operations with tables and slide

rules. They will have extended the number system to include fractions, decimals and directed numbers. They may, though need not necessarily, have encountered the need to handle real numbers. At any rate, through Pythagoras' theorem or through work on area, the puzzle of $\sqrt{\ }$ will have presented itself.

Ratio and rational numbers emerge from similarity in geometry and from probability. Between eight and ten, many children learn to organize and classify data, and one opportunity for the exercise of this still occurs in the analysis and representation of statistical data using such measures as the mean, mode and perhaps even the mean deviation.

The process of algebraic abstraction will arise in the generalizing of number patterns and such properties as the areas of families of squares, and volumes of families of cubes. The idea of an open statement and its truth set will occur in connection with problems in the form of inequalities and equations. Inseparable from generalization and problem solving are graphical methods of various kinds. In an age when so much information is represented and misrepresented pictorially it is of crucial importance that children learn to use and interpret graphs, charts and plans of all kinds.

Of no less importance, both in scientific work and in everyday life, is the capacity to approximate sensibly: to realize when a rough rapid calculation will suffice and when greater accuracy is required: to know the extent to which the data itself limits the possible accuracy of a result.

Some would contest the inclusion of item (5), feeling that the ideas involved are too sophisticated for 13 year olds. It is for this very reason, however, that a basis of fundamental notions laid early are of such value later. And plenty of opportunities exist already. One often sees primary children investigating the interior angles of regular polygons and even graphing their sizes against the corresponding number of sides. From this it is only a question or two to the conclusion that no matter how many sides the polygon has, its interior angle never quite reaches 180°. Halving and doubling, important in number knowledge, are the basis of working in the binary scale, yet the sum of successive halves $1/2 + 1/4 + 1/8 + 1/16$ —, or .1111—in base 2, clearly tends to the limit 1. Discussing the area of a circle by summing the sectors comprising it, or finding irregular areas by 'counting squares' both involve notions basic to integral calculus. Even the ever popular curve stitching is really only justified if seized as an opportunity to discuss gradients, tangents and envelopes.

Geometry in the middle school will probably begin with the three dimensional solids and their geometrical and topological properties, followed by the study of plane shapes. In the course of this such ideas as angle, area, perimeter, ratio, similarity, symmetry and rigidity (degrees of freedom) will arise. Later, with the 12 or 13 year olds, the teacher may wish to systematize the treatment. There is here the richest mine of opportunity for generalization and some of the abler children may be ready to accept stricter ideas of proof. Treatments will vary. Some teachers will still follow the Euclidean order and methods of proof. Others may prefer to develop the whole subject in terms of the transformations of translation, reflection and rotation. Indeed a few will tie this work very closely to the algebra, doing all the incidence geometry by vector algebra and relating other transformations to

matrix algebra. Some teachers will prefer to use the language of sets in every part of the mathematics covered. Others will not. Indeed, unless the language of sets is used consistently and with precision throughout, the teacher is probably well advised not to use it. What matters above all is that by 13 we shall not be confronted, to use the terms of the Crowther Report, with 'able boys and girls who have lost their intellectual curiosity before they have exhausted their capacity to learn'.

## Organization and Staffing

It is well known that children between 8 and 13 mature physically, intellectually and emotionally at widely differential rates. Where the head of a middle school, for social reasons, decides not to stream the classes, each teacher—and particularly the teachers of the older children—will have a very heterogeneous group of youngsters. Such mixed ability groups are not difficult to deal with in some subjects, but in mathematics they can present major problems for all but the most experienced and skilful teacher. Individual and group work is essential; class teaching seldom possible. The need to provide and supervize a range of different assignments each lesson and to keep adequate progress records for each child may render the problem of classroom organization extremely complicated. For the able and experienced teacher the challenge can be exhilarating and the results rewarding, but even so class sizes must be contained and resources made available. In many cases it may be wiser to organize ability sets, particularly for the older pupils.

This naturally leads us to consider the staffing of middle schools. Such schools will require some teachers skilled and experienced in primary school methods and also others who, while capable of working flexibly over various 'areas' of knowledge, (rather than within the confines of subject boundaries) are yet able to bring some degree of specialist expertise to their teaching, particularly of the more able children. Well-qualified graduate mathematicians, scarce enough in our sixth forms, are badly needed there; they are unlikely to be found in the middle schools. However, every middle school requires at least one teacher with a special interest and knowledge of mathematics, who either took mathematics as a main subject at a college of education, or who took a supplementary course later. Better still, he/she would also be knowledgeable in a related field; capable, say, of teaching mathematics and science and/or geography to the older children, and also able and willing to give a lead and guidance in this field to colleagues on the staff. Thus at a stage where the relatively undifferentiated knowledge of the primary school child begins to fragment into more distinctive areas, there would be teachers taking the classes for such areas: in this case, for both mathematics and science (and perhaps geography as well), treating the subjects separately when necessary, developing the fruitful connections and using the time allocated according to the needs of the moment.

## Liaison with Other Schools

The mathematical development of the child between 8 and 13, has in the present situation been viewed in different ways. Whereas the main response of the primary schools has been to change the methodology, and encourage a more practical 'discovery approach', the secondary schools have paid far more attention to the content of the syllabus.

Thus, unhappily, we occasionally find junior school children, their independence encouraged, and their enthusiasm fired by the satisfaction of investigatory work, transferring to secondary schools where a didactically delivered 'new maths' programme leaves little scope for enterprise.

To be fair, one meets other equally undesirable extremes—the enlightened secondary school fed by the primary school where discovery activities are pursued without proper consolidation of the ideas encountered, or the primary school where 'mathematics' is reduced to a constant dreary rehearsal of the four rules in arithmetic. Perhaps the last is worst of all, for the spirit and habits of enquiry, discouraged early, are sometimes lost for ever. Really effective continuity between primary and secondary phases is difficult to ensure and is not often found.

There is a need to work towards a continuation of good primary school practice into the 11–13 age range, but with a more conscious structuring of the experience and an increasingly deliberate development of the really important ideas. However, we must remember that while one advantage of the middle school is that it affords such continuity (and perhaps by its smaller size, greater security) over the vital phase 8–13, it risks all the consequences of replacing one break at 11, by two at 8 and 12 (or 9 and 13). This could well be a bad exchange unless the middle school also develops a far more outward looking attitude than is usual (though equally desirable) at other stages. It will neglect, at its peril, the need to forge firm links with its contributory primary schools and the upper schools to which its own pupils transfer. This latter transfer could be particularly critical, leaving as it does, only 3 years for the diagnosis and preparation of some children for external examinations. Though the obvious timetabling difficulties spring to mind, authorities could do worse than experiment with the appointment of staff to teach major subjects in both an upper and its associated middle school. Failing this, straight staff exchanges for limited periods might produce greater understanding than is possible with the mere passage of record cards. At the very least, not only headteachers, but assistant staff must be permitted to consult regularly with their colleagues in associated schools.

# Middle School Science

N. BOOTH

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The content of a middle school curriculum in science has to be judged both in terms of what those who follow it will know and in terms of their eagerness to go on grappling with the subject in the next phase of schooling. Eagerness by iself is not enough; the pupil's confidence in his ability to go on successfully with science is equally necessary.

No-one disputes the desirability of the eagerness and confidence, although there are differences of opinion about how they are achieved or more to the point, why they are so frequently absent in the 13-year-old. It is about what they can know or should know that the arguments range. At one extreme there are those who wish to treat science in the 8–12 school as an opportunity for open-ended exploration, where what is explored arises naturally from the spontaneous interests of the children themselves, and the role of the teacher is to restrain the over-ambitious, to trigger interest in the over-cautious, and generally to help without imposition. On the other hand there are those who see the 9–13 school as providing an opportunity to begin earlier the process of laying a sound foundation for the science which is to come. The role of the teacher is now to select what it is useful to know, and to exercise his judgement as to how each child might most readily learn it. Systematically or otherwise, a teacher selects what is to be taught according to his ideas about what is right for the child as a person, and what is right for the child in society. He selects in accordance with the values to which he subscribes and the resources in terms of effort and money, which he can afford.

The major exercises in curriculum development which bear on the middle school problem in this country are Nuffield Junior Science, School Council's 5–13 Science, Nuffield Combined Science, the first two years of the Nuffield 'O' level biology, chemistry and physics projects, and perhaps least in size but not, in my view, in value, the work done by Redman and his co-workers in Oxford and the county as described in his book *An Approach to Primary Science*. The first two and last of these have put the bulk of their effort into the pre-11 stage, although the 5–13 project is currently producing material aimed more at children of greater intellectual maturity. All of them have had extensive trials in schools.

None of the three has produced a 'course' for teachers to follow but rather a collection of material presented in greater or less detail and designed to show teachers how it might be done rather than what should be done. What it is hoped will be done is developed in great detail in the Science 5–13 programme which lists a comprehensive set of 'objectives'. The authors of this project are also much more specific about the 'need to engineer a suitable situation' and 'by leading comment' to divert children to 'more productive lines of development'. It remains for the teacher to select and to prompt, and whether or not he is consciously trying to lay the foundations for what comes later, the foundations will be laid and they ought to be sound ones. It comes back

in the end to the need for good teachers who know what are the productive lines of development. Not many do, nor could reasonably be expected to and the golden rule must surely be to keep it simple. We are on safe grounds so long as what is done does not attempt with young children to go beyond helping them to see what they are looking at, to begin to notice the patterns in what they observe and to exercise their inventiveness in carrying out simple tasks. Even so there are pitfalls for the unaware. How many older boys and girls are never able to realize the difference between, for example, mass and weight because of early implantation of false notions in and out of school? What is clear is that it is in these early stages that teachers are left to their own devices to decide what it is suitable to introduce, how to set about it and how far to go. No-one has yet produced a nationally acceptable core of material suitable for young children, capable of being soundly taught by class teachers without specialist qualifications in science, and acceptable as a foundation for what comes later.

It seems to me that there is a lot to be said for selecting such a core of material which all children would have met by the age of, say, 11 leaving plenty of time for 'spontaneous' investigation of whatever else took the fancy of either children or teacher. Say, for example, these three themes:

1. Matter. Experiments (and 'Apollo' film) which show that weight is not conserved. It depends where we measure it. Something (Mass) is. Experiments on forces leading to the general notion of how we recognize a force when we meet it, how we can measure it and some of the ways in which a force can be set up. The notion of buoyancy.
2. Energy. Experiments which show that re-arrangement of matter (mass still being conserved and hence, if measured at the same place under the same conditions, weight also) involves a phenomenon we call energy. This can be what we call a physical re-arrangement or a chemical re-arrangement.
3. Life. Experiments and observations which show that living things have the capacity to re-produce themselves: that one of the methods for doing so requires the presence of maleness and femaleness and a certain stage of maturity. That offspring are similar to, but not identical with their parents.

When we come to the later stages of the middle school the advice available in the projects mentioned above takes on a different aspect. The first and second year programmes in the three Nuffield 'O' level schemes are structured courses designed to occupy the time recommended by the then Science Masters' Association and Association of Women Science Teachers in their 'Policy Statement' of 1957. It is true that the authors of the chemistry scheme insist that the two alternatives presented are 'sample' schemes, but it is also true that the rest of the course depends on very much the same ground having been covered as that set out in the first two years of the course. There is in fact very little difference as to content between the two alternatives offered in the first two years. All these assume class teaching of science—indeed various 'Kits' of apparatus are only available in class-sized units—and they assume that classes or forms will be taken through the course in unison. They were of course written as the introductory stages of 'O' level courses. 'Science for All' meant for all those in grammar schools.

The Nuffield 'Combined Science' course, having started out with the limited aim of combining the three 'O' level courses, is in the event very different. It aims to provide material which, within the same overall aims, is suitable for pupils of a much wider range of readiness and awareness; it aims to provide a sound foundation for either 'O' level science courses later, or for CSE science courses; and it deliberately offers more material than most schools could find time for or most teachers would wish to attempt. Nevertheless, it is laying chosen foundations; it does require teachers who know what is to be erected on the foundations; it implies class teaching with progress more or less in unison; and it is not easy to see how it could be effectively taught without the facilities provided by a laboratory.

Too many pupils cease to have a science course at all after 13 or 14. For the majority which does, it is too often narrow in field of coverage and too narrowly conceived even within that field. Therefore foundations have to be laid, hopefully, for the needs of a lifetime in which the pupil will be required to understand, contribute to, and accept responsibility for changes in a society on which science and technology must necessarily have an increasing impact.

These are tall orders. We certainly have not met them in the past. We surely have to meet them in the future. Perhaps one other parameter should be thrown in. We have all heard a great deal of argument about the merits of unstructured, incidental, learning as against structured, disciplined teaching. Perhaps both have their parts to play, and especially with children up to 11 or 12 years old, it may be argued that the approach should not be decided according to some generalization about the way children learn, but much more in terms of providing a balance in the total spectrum of a child's learning experience in and out of school. A child whose whole out-of-school experience is unstructured —who knows about what he can do with bricks, sand and water, needs a balance of structure in school. The reverse would be true for the child whose parents see to it that structured learning experiences are his diet out of school. Under-achievement may occur in many cases because schools have tended to extend the same kind of experience in school as is provided by the mode outside.

What, then, are the implications for the middle school?

1. It should accept as a required component of its curriculum a core, preferably the same for all schools, of low level but fundamental notions in science which will be taught to all children, the teacher selecting whichever method of approach he believes right for his children.

2. This core should occupy only a proportion (certainly not more than half up to three-quarters) of the time devoted to science activities in the curriculum.

3. The remaining activities are of equal importance to the core activities, but they should arise from the spontaneous, probably prompted but unforced, interests of the children. They should include a strong element of learning-to-contrive, and could very well be integrated, with other areas of the curriculum.

4. For the core work, at least, a laboratory is needed, although this need not be equipped only in terms of the science core. It could also be used for many associated activities, but it is hard to see how a

few simple facilities in the corner of a classroom or an odd bench or trolley in an open-plan school could satisfactorily meet the needs.

5. Lastly, but most important of all, the teachers. If all, most, or even some of what is said above makes sense, then it follows that every middle school must have *at least* one member of the staff who has special qualifications in science—as such. Not, for example, a mathematician prepared to oversee investigation methods, but either a graduate or non-graduate who knows his science, who knows what his area of teaching contributes to the whole spectrum of science education in school and beyond school, and who understands children. He would be capable of giving guidance and advice to his colleagues less well qualified in science, and able himself to teach subjects other than science under similar guidance.

Any teacher whose training and experience has been solely with the pre-eleven year olds, and equally any who has been occupied solely with the post-eleven year olds will certainly benefit from and will almost certainly need, the advice and guidance which can come through discussion with fellow teachers and others concerned, whether through formal in-service courses or otherwise.

We can hope that out of the middle schools will come invaluable guide lines which will improve science education in these middle years in whatever way schools happen to be organized.

*A reform for which the 1944 Education Act made statutory provision comes into force in 1972–73.*

# The School Leaving Age

DAVID HOPKINSON

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No-one can know whether the change to be made in 1972–3 will pass almost un-noticed by future educational historians or will be regarded as a landmark. This raising of the school leaving age has been a long time on its way in a period when other developments in education have proceeded with surprising rapidity. Lord Butler's memoirs, for instance, have now revealed how much in advance of what might reasonably have been expected was the enactment of 1944 with which his name is associated.

It is perhaps first worth noticing that every advanced society is now, with a considerable sense of urgency, attempting to provide secondary and post-secondary education for greater numbers and at greater cost. In Britain we have been relatively cautious about legal compulsion. We acted in 1947 when the leaving age was raised by one year, but the 1968 intention to do so again was not realised. France, on the other hand, raised the compulsory school leaving age by two years in a single step. Denmark will extend compulsory education to 15 in 1972 and to 16 in 1973. What is it that moves us and other countries to act in this way?

The simplest explanation is the evidence of demand from public opinion, the rate of growth in voluntary 'staying on', the concensus among the political parties, perhaps based on the judgement of the Spens Committee as far back as 1938—'the adoption of a minimum leaving age of 16 years . . . in our judgement must even now be envisaged as inevitable'.

There is, of course, an opposition of sceptics. At one extreme doubts are expressed about the real value of the advantages that have been claimed. The personal development of the individual and the social good expected from increased educational investment are not likely to materialize, according to this school of thought. Its members are unperturbed by the large regional variations in the present rate of staying on. If it is accepted, however, as the sound judgement of citizens in the north of England that about half should stay beyond the end of statutory schooling, then the decision of those in the south-east that three-quarters should stay on must be regarded as equally valid. As this figure continues to rise every year the absence of a national pattern and the division into two nations becomes increasingly marked.

Another extreme view holds that increased investment in education should go elsewhere—some would have it into pre-school provision, others into the institutions of further education. Adherents of both views naturally emphasize the neglect and confusion that they find in both those two areas. There is certainly a case for employing more of our resources in accordance with their views. But the Central Advisory Council under Crowther's chairmanship was unconvinced by the

claims of the county colleges—then visualized as institutions for the part-time education of 15–18 year olds—for priority over the proposal to extend to 16 the age of compulsory schooling. Since the Crowther Report was published the most marked trend has been the increase in demand for full-time education whether at school or in the further education college. Some weight must be given to growing criticism of our provision for those 15–18 year olds who leave school and either seek part-time education or for one reason or another reject all further education. But it is difficult to see how a second recoil from the raising of the school leaving age would benefit them. When that step has been taken, and its effects have begun to be felt, then the time may well have come for a searching enquiry into the further education opportunities open to the 16-year-old leaver.

It would be of no service to claim that the decision to raise the age has been based on any convincing form of cost benefit analysis. The decision does reflect, however, a long tradition of state aid and state authority exercised to achieve national and individual self-improvement. As such, it is consistent with recent decisions made in other countries particularly those with which our economic ties are strongest.

## Material Provision

Those active in education twenty-five years ago are bound to recall one of the earliest initial letter words created for service in their field—HORSA. New huts in those days represented a luxurious provision, compared with tents or bivouacs, let alone leaking church halls or left-overs from the military accommodation of an even earlier war. Today the building programme for an operation sometimes described as ROSLA has more solidity and less haste. £100m. was allocated in 1969 for the new accommodation which would be needed. Additional resources have been found this year for LEAs which seemed to be unfairly treated in the original allocation. This operation and the LEAs schemes for secondary re-organization have, however, become inextricably interwoven. The available evidence seems to suggest that this fortuitous coincidence of reforms may have been, on balance, of some advantage. On the other hand there are instances where the problems of achieving re-organization seem likely to affect the provision of the new accommodation needed in 1973. It has been argued that the *right* form of provision for the 'new fifth', as for the 'new sixth', must be in the shape of so-called 'specialist accommodation' rather than ordinary classrooms. Building Bulletin No. 32 presents this view in some detail and presses the case for a fifth form unit as an extension to an existing school.

Two comments on the situation as it now stands suggest themselves. The free choice of the authorities over the additional buildings for which they are responsible is the means most likely to achieve a satisfactory result. Some will add to existing schools, some build new schools and some re-allocate their resources in order to obtain the particular blend of primary, middle school and secondary provision which local circumstances demand. One factor in the situation, however, has a nation-wide significance. Raising the leaving age can only mean that many who would not have chosen to be school-pupils in their 15th year will now have to accept that destiny. The best informed educational opinion has therefore emphasized the need to create a new atmosphere in which any reluctant pupils that there may be will

breathe reasonably freely. To some extent this depends on buildings and equipment designed or adapted to satisfy the special needs of the less academically gifted, the slower learner, the pupil whose central interests will tend to lie outside the life of the school, as he or she has up to now experienced it. This implies the introduction of new materials and equipment, as well as new attitudes and work programmes. The extent to which the authorities are providing equipment suited to the needs of pupils staying on is less certain than the provision of 'roofs over heads'.

## The Readiness of Teachers

It is pointless, however, to provide things that are not going to be used. Thus every development project bearing on the secondary school curriculum is normally associated with an in-service training programme, designed to familiarize teachers with what is new both in terms of ideas and of materials. Increased attention to in-service training all over the country has been one of the most impressive signs of response to the challenge implied by the raising of the age. The professional concern of teachers over their contribution to the community's welfare has never been more marked—whether it takes the form of seeking to renew and defend certain standards and values associated with British education, or whether it is absorbed into vigorous support for new curricula and organizational models.

It is possible to discern some relatively new developments which have contributed to this situation. One is certainly the attention given to the setting up of teachers' centres as a practical step towards discussion, and the testing and dissemination of ideas on method and materials. It might be judged that a new generation of advisers, inspectors, organizers, field officers, research and development workers operating right across the educational front have brought more expertise and more encouragement to the support of teachers than was ever the case before. The great expansion of the colleges of education and of university departments and schools of education has not only promoted educational studies on a much greater scale; it has also offered fresh opportunities and brought a new awareness to many serving teachers. Finally the energies of the Schools' Council have been expended for a sufficient period of time and in a sufficient variety of directions to have achieved substantial and encouraging results. Since 1964 the Council has played a consistently creative role in that side of its function that promotes growth and renewal in the curriculum. A great part of all that it has sponsored—research studies, projects in which new methods and materials are developed, field work, publications and conferences has been consciously designed for a situation in which secondary education has been extended to cover many more pupils of 15 and 16.

## Curriculum Projects

To review the numerous research and development projects with which the Schools' Council has been associated would be far outside the scope of this short article. But an indication can be given from two fields of work—science and the humanities. From 1966 onwards a steady process of test and experiment with new materials for the teaching of science has been going forward. The particular concern of the Nuffield Secondary Science Project has been with pupils of 13-16 who are unlikely to be entered for science subjects at 'O' level. 'We

want them to experience the excitement of a discovery which is genuine for them. We hope too that they will develop an attitude to science which shows some understanding of what science is and how their own lives can be affected by the use and misuse of scientific ideas'. This is the underlying aim of the work as expressed by the director of the project. The material is based on eight themes, each of which is divided into a number of fields of study. The use of this material has been under observation in 212 secondary schools. Teachers are not offered a science course but lines of thought, extending into teaching programmes, as the material from which to devise the course they want to teach and which they believe their pupils would want to follow. Writing in *Dialogue*, the Council's newsletter, a senior science master in an urban comprehensive school details some of the questions with which he deals: ' "*What is my lung capacity?*", "*What force, in newtons, can my left leg exert?*", "*What is my power rating when pedalling a bicycle?*", "*Does my body conduct electricity?*", "*What is my angle of vision?*", "*Am I colour blind?*", "*What is my blood group?*" ' The emphasis is on personal investigation of everyday phenomena—the functioning of the human body, the production of materials that can be put to practical use.

With a bearing on the same issues but with a particular bias towards the applications of scientific principles, another large-scale enterprise—Project Technology—is developing and testing teaching materials in an even greater number of schools.

The various humanities projects are also in the main devoted to the education of pupils of average and below average ability. Again the objective is to prepare teaching materials from amongst which selection can be made. Thinking behind these projects has concentrated on identifying certain themes of basic human importance connected with the moral and social problems faced by contemporary man. In one of these projects the possibilities of team teaching have been explored. In another the experimental methodology has centred on the individual teacher's role as neutral chairman of a discussion group which reviews the evidence provided by printed documents, photographs, cartoons, tapes and films.

The curriculum, like the language we use or the recreations we pursue, should be fluid, subject to variation and change, never a frozen, static incubus; that we know in our bones. It is more difficult to give realization to the concept of fluidity. There is a danger in the lifeless repetition of dogmatic theory about the curriculum of which every teacher is aware. Another danger which teachers will recognize is rather surprisingly identified by R. D. Laing writing about the clinical psychiatrist, [There is] "a danger that we let others do the theorizing while we do the work. None of us can afford to take on trust statements by people who think they can tell us what we are doing: people who do not actually do the practical work themselves, but who feel they are in a position to theorize about it".

## The Potential of RSLA

In an interesting but uneven book, *The Extra Year*, edited by Professor Tibble and published last year, the raising of the school leaving age is discussed by various writers each animated by the belief that the extended education of greater numbers benefits the individual and the

society of which he is a member, but only if the method and content of the education available is of an effective kind. The problem is, of course, to discover and reveal to educators what essential factors make for effectiveness. In this attempt to sketch out some of these, much has been omitted. There is space only to indicate the main areas in which development needs to take place. The first to which we have referred is the provision of building and equipment. The second comprises the whole issue of the training and deployment of teachers. In southern England, to quote the conclusion of HMIs, 'there can be no doubt that the best teachers are employed in examination work. If one of the effects of raising the school age to 16 is to produce more would-be examination candidates at 17, even more teachers will be involved in this objective'. Yet many estimates of what might make the additional year effective for the majority stress the importance of reforms which should influence the whole five year course and not merely the terminal year. The results of experimental work on the curriculum also point to the need for different relationships between teacher and pupil and for an approach to learning less authoritarian and less teacher-directed than that associated in the minds of many with the achievement of examination success.

Moreover the case for a great attention to social education—not measurable by examination—as opposed to personal education, has been advanced with considerable force in recent years. To meet such claims it is clear that the way schools are organized, the way teachers are employed, and the subjects of the curriculum themselves would have to be re-examined. If, as Professor Philip Taylor has suggested, the aims of social education are to clarify the experience and establish the self-esteem of young people, then innovation in teaching method and classroom organization are clearly demanded. To bring new interests and new experiences into the lives of their pupils might thus be seen as the major claim on the teachers' resources and the schools' pattern of organization. Based on this theoretical approach considerable development has already occurred. The growing tendency to take the pupil out of school, to camps and field centres, to foreign countries, to unknown parts of our own country, to work experience, to the study of people and institutions outside the school, to care and concern for those in trouble—all this is notable and relevant to the situation of the leaver at 16.

Nevertheless many 15-year-old pupils are certain to ask themselves the question—is this worthwhile? In almost all studies of adolescent attitude and viewpoint the significance of personal identity emerges. The pupil's basic concern is now with his individual place in society. He and his parents are bound to weigh the education offered against the possible returns it must yield. They are after the knowledge and skills that are immediately exploitable in terms of a working life and a career prospect. In these respects, for many, a system of part-time education associated with actual employment in industry or commerce tends to assume a significance which school cannot equal. Yet adjustment to a complex modern society seems to demand an exploration of the identity, an education in feeling and interpersonal relationships, no less urgent than what for the moment appear to be certain realisable assets of special skill or knowledge. Thus further education courses for the younger student broaden their content and character and are designed increasingly for a 16 and 17 rather than a 15-year-old level of

maturity. The answer to this problem may best lie in the development of 'link-courses' where the work is shared between school and college. To cope successfully with the raising of the age, LEAs have not only to develop their secondary schools, but to utilise the resources of further education, the youth service and their careers guidance organisation.

The raising of the school leaving age in 1947 did not transform English secondary education, but it made possible many curriculum and organizational developments. There were then many schools in which such developments could not otherwise have occurred. Raising the age in 1972 is not an end in itself but a means by which new enterprise may re-animate the schools. Eventually a pronounced change of direction in secondary education, equivalent to that which has revolutionised the primary school, might be expected.

Since the early 1950s vastly increased investment in higher education has been forced in our society, as in other advanced economies, mainly for economic reasons. This, according to Professor Townsend has represented 'a big switch of national resources to the middle-income groups'. Raising the school leaving age, if we can give real value for money, should redress the balance in the interests of the entire school population.

*When a school is expanded rapidly, inevitably there are problems. The headmaster of a school which changed from three to an eight form entry in seven years writes about the experience.*

# Enlarging a School

EDWARD S. CONWAY

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The development of a three-form entry secondary modern school into a large comprehensive school involves many changes which affect not only the academic structure but also the whole tone of the school. Different schools may be affected in different ways because so much depends upon the headmaster, the teaching staff, the adequacy of facilities and the quality of the pupils. Nevertheless, there are probably some characteristics which will be common to most schools which undergo a radical change of this nature.

The school of which I write was opened in 1958 as a three-form entry mixed secondary modern school and, in 1965, an extension was added to enable the school to function as an eight-form entry co-educational comprehensive. In that year, the first eight-form comprehensive intake had a reasonably well-belanced ability. In each successive first year, it has admitted a similar kind of intake and, in September 1971, the school will, for the first time, have a complete intake from the first year to the Upper Sixth.

The JFS is not a neighbourhood but a community school. It caters for Jewish children throughout the metropolis, although the majority lived within the ILEA boroughs at the time of admission. Their home backgrounds reflect a complete cross-section of the Jewish community.

In order to achieve an effective integration of this heterogeneous group of pupils, it was decided from the beginning to place the pupils into mixed ability tutor groups where they were taught together during their first year; in later years a system of setting was introduced and this became more refined as pupils approached their fourth year. Consequently, when the school became enlarged, the academic structure had merely to be extended rather than altered in order that it could function as a large comprehensive school.

As the school grew, it became apparent that effective setting became easier. When a variety of choices of subjects was offered in the smaller school, mixed ability teaching became inevitable in the middle and upper school. Since the teachers, in the main, were not equipped by training, experience or inclination to operate mixed ability teaching above the third year, this soon became a source of strain and frustration both to the teacher and to those pupils who were strongly examination-motivated. Furthermore, because of the limit to the number of teachers a school can engage, it was unable to introduce any peripheral subjects, for this would have weakened the strength of staff for major subjects: even some important subjects were not taught because they attracted too few pupils.

## Qualities of the Smaller School

Since my school was voluntary-aided, no pupils were directed there; it had always been heavily over-subscribed in applications; consequently, the pupils tended to be loyal to the school and to its reputation. There was also a noticeable feeling of commitment on the part of teachers who were determined to secure good examination results even from pupils who, on admission, had been assessed as possessing limited academic potential. All this helped to achieve good results even in the smaller school.

Before 1965, because of the limited size of the school, frequent staff consultations were possible about the needs of the comparatively few pupils in the fifth and sixth years. Each pupil was interviewed on several occasions by the deputy-head, who was in control of the academic progress of the school. All the teachers appeared to know all the pupils; every teacher appeared to have had some sort of contact in one capacity or another with every pupil during his progress through the school. The houses were comparatively small intimate gatherings which generated feelings of common involvement and mutual interdependence between staff and pupils.

Fortunately there has been a continuity of pastoral care, because many tutors and, certainly, the heads of houses have occupied their positions almost from the year the school opened. Furthermore, since the latter have been in charge of academic departments, they have been involved in all the problems which have affected both the general welfare and the academic progress of pupils.

All the various kinds of staff meetings were attended by the head, the deputy-head and senior mistress and who were also able to interview all pupils who presented serious difficulties. Consequently, both staff and pupils recognized the personal interest which was being taken by the senior staff. Indeed, it was possible for the latter to take a personal interest in the academic progress of pupils because they were able between them to examine periodically the exercise books of all the pupils in the major subjects, so that teachers were assisted in maintaining high standards. Parents, too, had direct access to the head. This not only relieved the assistant teachers of some of the burdens of administration, but it gave parents a feeling of security because they knew that the person who had the ultimate authority within the school was always available to deal directly with their problems.

There was no lack of extra-curricular activities and the whole school was involved in the major school events. At Prize Day and at Sports' Day, the whole school was assembled. There was a perceptible feeling of intimacy within the PTA because all parents could be assembled together to discuss matters of major importance. This kind of general involvement was no longer possible when the school became fully enlarged.

## Staff changes

To some extent, the quality of teachers employed is determined by the allowance structure. Since a small school can afford only a few posts with high allowances, the field of application is restricted. Good teachers tend to gravitate to posts with the higher allowances and this precipitates a high turnover of staff.

It would appear that schools which open with a maximum roll have an allowance structure appropriate to their size, and this enables them to function from the outset with the most competent staff that the ultimate allowance structure is capable of attracting. Whilst, however, the JFS was growing, the original staff were, in the main, upgraded in the posts of responsibility they had acquired in the smaller school.

If a small school is administered so that it is capable of providing major facilities of the kind and variety which a large school usually offers—and this was my aim—then the staff have to carry additional burdens without any additional monetary reward or relief from teaching duties. On the other hand, as the school enlarged, it became possible for the heads of major departments, the careers master and other teachers with special areas of responsibility to carry smaller teaching loads even though there might have been delays in receiving the higher allowances. Furthermore, more assistance was made available to teachers through the availability of non-teaching staff, such as a full-time librarian, a school nurse, various types of technicians and clerical assistance.

Because there is a larger staff available to each academic department, specialization is possible. Teachers are able to pursue individual interests both within and outside the time-table, which is thus able to offer a greater variety of opportunities to both pupils and teachers.

The major advantage of a large staff is seen, not so much within the staff-room, as within departments through the more diverse contributions of individuals. Within a staff-room, a large staff tends to generate an impersonal atmosphere: a corporate feeling was more conspicuous in a small school. There is unquestionably a qualitative difference between the reactions of the staff of a large school and those of teachers in a small school.

On the other hand, because of the large number of teachers in some departments, such as English, science and mathematics, staff meetings can evolve into a kind of in-service training session. Teachers can be spared more easily to attend courses and conferences so that the school eventually becomes more easily enriched with fresh ideas.

A further drawback of evolving gradually into a large school is that those who direct the affairs of departments always have to plan ahead for a larger school on the basis of their experience in a smaller school. Unlike those in established large schools, less advantage can be taken of hindsight, and, although it is possible to benefit from experiences gained in, or by other large schools, there is no adequate substitute for the experiences gained in one's own school.

In a growing school, one is always planning to meet contingencies which one can only anticipate: at the same time one has to contend with the problems common to all schools which aim at improving on past experiences. This dual responsibility adds to the tension within schools and this can be exhausting because in addition to meeting the needs peculiar to their school, teachers are constantly being subjected to pressure from external sources to incorporate new ideas in teaching method or curriculum development or extended pastoral care.

Because the administrative structure of schools changes during the initial stages of their enlargement, confusion could follow. More responsibility has to be spread among teachers who hold major posts

but this could result in a variety of interpretations of regulations and thus involve the head and deputy-head in ensuring that changes in the system of administration are uniformly enforced. One is reconciled to the situation that some of those who might have filled admirably a position of responsibility in a small school might be unsuited for a similar post in a large school. Consequently, one has to wait for resignations in order to secure suitable staff; it might even be expeditious to introduce a different form of staffing structure in order to ensure that the more effective teachers fill the more important administrative positions.

New staff appear to experience less difficulty in adjusting to the larger school because some of the original staff tend to persist in behaving in accordance with established practices. An additional cause of frustration among the older staff is due to their realization that in each successive year, an ever increasing proportion of the pupils are complete strangers to them; they never meet them in the class room or in the school activities, yet they might be called upon to exercise some disciplinary control over them.

## Academic Opportunities

Teachers, who enjoyed happy experiences in smaller schools, tend to resent the frustrations of the larger schools. Some of the methods adopted in large schools for ensuring the greater involvement of teachers and pupils, and for securing an effective personal interest in each pupil have been described in my book *'Going Comprehensive.'* Although such measures can provide for a 'tailor-made' academic programme for each pupil, it would seem that in a large school congregated in one building—even though it is purpose-built as a comprehensive school—it remains difficult, if not impossible, to create the same kind of an experience of involvement on the part of pupil or teacher as was possible in a smaller school.

From the standpoint of academic opportunities, the large school affords greater scope to both teachers and pupils—a large variety of courses can be provided to suit the needs of all but the most exceptional cases. Thus in my school over 100 possible alternative courses are offered to pupils in the fourth year and upwards. By means of setting across the school, pupils can be taught in comparatively homogeneous groups—if this is desired by the teachers: team-teaching, group-teaching, mixed-ability teaching can all be introduced at any time by any department. An 'express' group and withdrawal classes for retarded pupils can be introduced at any stage without imposing a strain on the teaching staff. From the standpoint of learning and teaching the larger the school the more economically and effectively it can be administered.

On the other hand, the more opportunities there are available for pupils and teachers, the more impersonal and sophisticated will be the administration. In a growing school, the teachers are expected to plan ahead on the basis of a more sophisticated system of administration with the number and quality of teachers engaged to administer a less complicated and small school. The only substantial immediate but short-term advantage of the enlarged school is that it provides extensive accommodation because this is normally provided early in the growth of the school in anticipation of its ultimate expansion.

## Conclusion

On balance, it would appear that for pupils in the first two or possibly three years, there is little to be gained from being incorporated in a large school. Until this year, my school was banded on the basis of four tutor groups (two houses) in each band for the purpose of academic setting. This provided four graded sets and a withdrawal group for each subject. Next year's setting will be arranged across eight tutor groups from the fourth year in order to provide an extended choice of courses for external examinations.

From my experience, a lower school could function adequately in a small teaching unit and this would enable staff and pupils to have a maximum impact upon each other.

To produce an adequate system, however, which could effectively guide the progress of pupils throughout their secondary school career, it would be essential that there should be continuity of direction and control over major issues of academic policy, and pastoral care through a continuous process of assessments and records from the first to the ultimate year of secondary schooling. In this way, pupils and teachers would experience the advantages of the intimate atmosphere of a small school with the variety of facilities, courses and teaching strengths which a larger school offers.

Further thought should be given to the wisdom of extending the comprehensive system of education through the media of large purpose-built schools on the one site. It would, however, be unwise to make other smaller units autonomous, although it is desirable that they should be housed in self-contained blocks and internally administered on the basis of a general policy common to all age groups. There would be unnecessary duplication of effort, if not confusion among pupils and staff if, at the different stages of secondary education, they would be subjected to different systems of social and academic administration in those areas where one would wish for continuity of approach and of control.

*With the co-operation of the LEA concerned, a survey was undertaken in 1970 to assess the quantity and quality of books being used in the 96 primary schools of one division of an English county. The information on which the final document was based was obtained partly from answers to a questionnaire and partly from visits which were made by HMIs to each of the schools involved.*

# Half a Million Books

The overall book policy of a primary school is determined by decisions about the purpose of reading and the way books are to be used. Is it merely to receive information or to acquire a socially acceptable habit? Is it to promote language skills essential to the development of thought? Does it have a spiritual value enabling the imagination to expand and flower? Is there a therapeutic value in role playing which encourages even small children to identify themselves with the characters in simple stories?

## Provision of Books

The schools which co-operated in this survey contained 17,933 children and 567,373 books, a ratio of 32 books per child—a figure very close to the 30 books per child which was suggested as reasonable in discussion with teachers and librarians before the survey was launched. The distribution of these books, both between schools and between types of books, showed however a wide variation from the norm. The books were divided into three categories as shown in the table below:—

*TABLE I*

| *All pupils* | | *Books* | *Books per pupil* |
|---|---|---|---|
| 17,933 | Library | 178,966 | 17 |
| | Readers | 70,571 | 6 |
| | Text books | 192,033 | 18 |

The number of text books was surprising and the average in that category conceals the provision of 52 text books per child in one school and over 30 in ten other schools. In contrast, two schools provided only two text books per child, supplementing these with work cards. Needless to say, both these schools made extensive use of their libraries.

When the children were divided between those in the junior schools or departments and those in infant schools or departments, the figures again hide the variation of provision between individual schools and between types of book.

*TABLE II*

| | *Pupils* | *Books* | *Books per pupil* |
|---|---|---|---|
| Juniors | 10,627 | 441,570 | 41.5 |
| Infants | 7,306 | 125,803 | 17 |

In the infant schools and departments, the figure of 17 books per child is an average concealing a spread from 5 to 54. The overall figures for the different types of book seemed reasonably balanced but, again, concealed extraordinary local variations. However, if the number of children in this age range who could not read could be taken into account, the ratio would presumably be better for those who could. Also, in many infant schools, the reading of 'readers' was being abandoned in favour of the reading of books. Some book-corners were outstanding in both selection and presentation. The realization that very young readers appreciate a 'proper book' early on, rather than a succession of sets of little books, was also apparent in some schools. But in many the number of readers was somewhat depressing; it appears to be self-defeating to teach reading in the infant departments to enable children to read 'readers', whose quality in respect of such things as story line, development of character and vocabulary, is often inferior to that of the many good children's books now available.

## Quality of Books

If numbers were the only yardstick there would be little else to say than that a more equitable distribution of the total book stock available in the schools would be an acceptable solution. Such a simple criterion is clearly inadequate and ignores the question of what is the *right* book. One head suggested that the purpose of a junior school library should be to enable children 'to seek, search, select and record in a variety of ways'. If such a view is held, then the right book is an information book and this would help to explain the make-up of the total number of library books in these junior schools. Information books numbered 102,646, fiction 76,320. The pressures are all in favour of building up the non-fictional element, one contributing factor apparently being the inclination of schools, influenced by catalogues and advertisements, to acquire all the titles of series or sets. That the quality and suitability of the contents may vary from title to title is often hidden until too late, or, possibly, never noticed.

Excluding the provision made by the Schools Library Service of the County, most school collections of fiction presented a sorry sight. A rational and well-publicised procedure for writing-off obsolete and shabby stock would be advantageous. Many head teachers had not realised this was possible. Others retained old books in the belief that they might come in useful in the future. The acceptance of unwanted old books from friends, parents and children, to build up libraries appeared to have contributed to this dilapidated stock. There was little evidence that books acquired in this way were worth shelf-space.

In most schools the good examples of children's literature were dated. John Buchan, Arthur Ransome and A. A. Milne were to be seen on the shelves as they would have been in a good junior school collection 30 years ago. Some teachers showed little familiarity with contemporary children's literature. The general quality certainly seemed to improve when one teacher had been given the encouragement and opportunity to develop a special interest in books for children.

## The Schools Library Service

A vast amount of help has been provided by this comparatively short-staffed service which has entirely merited the praise of both heads and teachers. A stock of some 300,000 books, of which 225,000 are on loan

at any given time, is organized by four librarians and three assistants and the organization is geared to making their stock available to people who want to use it.

Three travelling collections are provided, enabling schools to borrow books at the rate of one-and-a-half volumes per child, for a six-month period. The vans are accompanied by a professional librarian who will give advice on selection. Advice is also freely available on housing and shelving as well as help with basic cataloguing.

A new-book supply service with a minimum of form-filling is used by some 50 schools. The books, provided from the largest selection of children's books in the county, have all been processed and all the fiction titles have been selected after reading and discussion.

These two important services help to supply a constant stream of new and exciting books. Some 90 per cent of the worthwhile fiction seen in the schools was on loan from the county, though this formed only about a quarter of the fiction stock.

In addition, the service provides study boxes of 20 to 30 titles on specific subjects. The list of topics has been compiled in direct response to requests from the teachers who can generally get a box within 14 days. There are 2,300 of these boxes though many of the more popular topics are duplicated. The contents of the boxes are revised as and when volumes become worn or new and relevant titles are published. Every effort is made to include fiction as well as straight information books.

The teachers are full of praise for this service which is nevertheless not without some questionable features. The most disturbing of these may be a tendency for the children's work to be determined by the choice of box rather than by their own interests or by what may arise from the current teaching/learning situation. There may also be a tendency to orientate work towards a known and successful box—and many schools re-order the same box at regular intervals. Where such repetition is felt desirable it would be better to obtain those books for their own collections. Furthermore, this system tends to blind teachers to their school's own resources. This was well illustrated by one class using a study box on 'Elizabethan England' when 15 of the 20 books in the box were on the school's shelves. Resources in this instance were being needlessly duplicated and the children were being denied a relevant opportunity of practice in using a library.

The visits of the vans also perform a vital function in that they are occasions for collecting out-of-date or worn books. The service expects a three-year turn-over of stock and if schools were to adopt the same criterion the half-million books of the title of this account would be decimated.

## Administration

In many schools the availability of books was restricted not only when subject to conditions outside the control of the school, such as evening lettings. Ideally the books should be available for use at all times and children allowed to take them home, but where much use is being made of information books these may have to be returned to school each day.

Freedom of use requires organization of issue and return. Once intro-

duced, the normal method of card and pocket can be operated by children. Only 11 schools date-stamped books on issue, yet this is a simple process which children can do themselves. If re-ordering and replacement of popular books and the discarding of unused books are to be efficient, some system of noting which books are borrowed is essential. Wear-and-tear, which most teachers mention as the sure sign of popularity, is by no means a foolproof guide. As one head remarked, 'It is exceedingly difficult to determine whether a book has been borrowed 30 times or been kicked round the cloakroom once'.

The desirability of one teacher being in charge of all the book resources of a school has already been mentioned. In seven schools this task was undertaken by a part-time teacher, with notable results. These teachers really knew the stock, its strengths, weaknesses and usage.

If the argument about central or dispersed collections were to be decided on the evidence assembled during these visits, the decision would seem to favour a centralized system. The best use of books in both infant and junior departments was observed in schools with a central provision. In the infant schools this prevented unnecessary duplication of 'readers' and in the junior departments enabled children, whose reading age varied far more than their chronological age to have a full selection of suitable books. Every teacher ought to be interested in children's books, but a centralized collection and buying policy can and does enable one teacher to develop special expertise. In this contect it was noteworthy that the one school with a dispersed collection, but with the enthusiastic interest to compile a central catalogue, was engaged in strenuous efforts to create a central library provision. Books in the classroom should, of course, remain an essential feature of primary school work even when central provision is made.

Another essential feature of a good book policy, observed in a number of the schools, but unfortunately only a minority, was a conscious effort to promote books. Colourful book corners in reception classes, containing well-illustrated books attractively displayed, contrived to set a tone from the beginning. Book corners for older children, with books appropriate to the different age-groups and closely linked with their activities, interests and experience, were in evidence in some schools. Book displays in some central position confined to a given subject or a single author were to be seen in two schools and had stimulated great interest. The effect of these and other devices can only be achieved by an abundant supply of good quality reading material including paperbacks.

## Use of Books

'To me it is the most important thing we do' said one headmaster when discussing the use of books. Other opinions expressed were, 'Reading is for enjoyment' and 'Books are only worth reading if matched with comprehension cards'. The emphasis on enjoyment is surely well placed because once children enjoy reading they seem quickly able to develop the skill of obtaining information. When too much insistence is placed on the informational aspect, there may be no spur to read unless specific facts are required. There appeared to be general agreement with another head who said 'Children have got to read for fun first'.

It would be difficult to fault the initial procedures adopted to arouse in

children a burning desire to read. It was in the next step that differences crept in and were later magnified. This stage was that exemplified by the set reading scheme, often there was only one, followed by supplementary readers. That final stage was all too often paralleled by the traditional use of text books, an approach that assumes that each child's development and interest follow the pattern set by the authors of the series. It was significant that many children knew the number of the book they were reading, few the title. A wide library provision, in a number of cases colour-matched to a reading scheme, enabled some fortunate infants to expand their reading horizontally as well as vertically.

The use of text books and work books noted in over half the junior schools visited, seemed to be inconsistent with modern primary school method. If they are being used as reference material or as reinforcement for previously identified weak points, criticism is disarmed. All too frequently they were being used as the lesson itself and this in unstreamed classes of wide abilities. In only seven schools of those visited were information books being used as they should be as sources of reference for a planned project. In all too many schools they were the project itself. Children were writing about 'Butterflies', aided by a single book entitled 'Butterflies'. Whether they copied or 'put into their own words' was immaterial. It is in this area that the use of books needs the most thought and planning. Another aspect that deserves consideration is the information value of story books. The apt book can give the feel of another age, another place or the point of view of a different race. The county library study boxes attempt to meet this by including relevant fiction with the factual material.

Above all, reading for enjoyment implies first and foremost that the teachers enjoy reading and know about children's books. A positive attitude can be set by the teacher who promotes better books, leading children on by sample or example and always making sure that books are available. It was a matter of concern that children in a number of schools which were following a weekly television programme on named books were unable to obtain those books at the relevant source —the school. There is no virtue in whetting appetites if good food is not readily available.

### Purchase and Replacement

Thirty-four of the schools visited spent more on library books than on text books, and of these 17 spent more than the average £1 per head on books from capitation allowances. The highest expenditure per head, excluding new or reorganized schools obtaining special grants, was £1.95 and all of this had been spent on text books. The lowest expenditure per head was 15p and all of this was also spent on text books.

So far as could be ascertained, no school had a regular policy of book replacements; worn-out stock might be replaced. A new set of 'readers', a new set of text books, could be ordered after considerable discussion. New mathematics and decimalization were hastening replacement in that subject. It was interesting to note that new schools with no sets of text books to replace were ordering very few. Work cards, a more economic way of providing set exercises, had been bought or made. Information books had replaced texts in all other subjects.

## Planning for the Future

The book resources are an area in which large or small schools ought to be able to establish equality. If, as was seen during this enquiry, text books are progressively to be replaced by information books and if, as it urged, reading for enjoyment is promoted, book collections should be more uniform in size. This would give the child reader a better selection whether he or she went to a small or a large school.

Thinking in terms of the actual numbers of books already in schools, that is 32 to a pupil, a first step towards redistribution might well be to set a maximum of 10 text books and 10 readers per child, and to aim at a library provision of 10 books per child. Progressively the number of text books and readers could be reduced to 3 or 4 per child and the number of library books increased. Once this stage had been reached school libraries would be running at the 10,000 mark for a middle school of 480 and expenditure would be fully committed to maintaining this, or a somewhat smaller collection in a serviceable and up-to-date condition. It is worth stressing that 10,000 books need 1,000 feet or 300 metres of shelving. Lest these figures appear too idealistic, four junior departments in this area, all with good libraries, are providing 160, 225, 267 and 327 children with 4,658, 3,013, 4,897 and 5,648 library books respectively.

First schools may well be much smaller. Some are planned to hold only 40 or 60 children. Here provision must be on a much more lavish scale per head than in the larger schools. There is an argument for a great concentration of the County Loan Service in those areas which are generally further removed from public libraries. It is at least arguable that no school should have a book stock of less than 2,000 volumes or the number of children multiplied by 30, whichever is the larger figure. New schools and smaller schools tend to suffer in this respect and here again County Loan and administrative action could be used to level out inequalities.

In first schools there appeared to be two main bodies of opinion about reading. The majority of teachers held that they must keep track of children's progress and that to do this they must ensure that their pupils completed a given scheme, plus supplementaries, before they were allowed to venture further. The minority view, lately reinforced by the development of '*Breakthrough to Literacy*', argues that once children have reached a reasonable degree of fluency they should choose their own reading material from the school or class library. There is a half-way position which insists on children completing the scheme but allows them to have a library book and sometimes differentiates between periods of time available for class readers and for library books.

The movement appears to be towards the minority view and this will influence the growth of library provision. Apart from mathematics text books, there is a virtual disappearance of text books in the more modern infant schools and it is even possible that in time work cards will supply all the needs previously satisfied by text books.

In terms of numbers projected, first schools of 160 would have 4,800 books, roughly divided between the library and the reading schemes. In time and with good organization this might be split—3,200 in the library and 1,600 shared between text books and readers. That this too

is not idealistic is shown by one or two sample figures from schools where the reading provision was good. One with 193 children had 4,781 books, 3,274 in the library. Another with 182 children had 4,222 books, 2,550 in the library and no text books. It is worth noting in passing that the standard of book provision in infant schools tended to be considerably better than that of the infant departments of all-through schools. Reading was a subject of relatively greater importance at this stage, and it appeared to have the greatest care, thought and provision.

Libraries of the size suggested above, and the word library is still being used to mean no more than a collection of books, will patently need someone with time, enthusiasm and some degree of expertise to organize them. Teachers will need to be taught and helped to use them properly. Far too many books were being used as copying material disguised by terms such as 'topic' or 'project'.

Ideas suggested by teachers during the survey would combine to produce the following developments in a school:

(i) Each teacher would be reading at least one new children's book a month.
(ii) No book would go into the school library without a teacher having read it.
(iii) Schools would join library associations.
(iv) Books about children's books would be available in every staff room.

Regular interchange of book information between teachers should be possible within and between schools.

Once these ideas are common practice there would be better books in our schools and their use would be substantially improved.

*Proposals have recently been made for changing the classification 'maladjusted' for children with behavioural problems. An educational psychologist examines the implications and discusses the education of children handicapped in this way.*

# Maladjusted: a Misnomer?

NEVILLE JONES

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The term 'maladjusted child' is a difficult concept adminstratively, clinically, and therapeutically. But there are few who would abandon it lightly for some other conceptual label, unless this leads to better diagnostic precision, to clearer communication as between professional workers in terms of treatment needs, and in the enlightenment of the lay public. Sir Cyril Burt has recently reminded us that 'the word "maladjusted" like the legendary chameleon, changes its colour with its context', but in spite of this, the term does have a 'currency' value for clinicians and educational therapists. It is a term that has a certain understood usage in our language, but, it may also foster confusion and misunderstanding and this strengthens the argument for abandoning its use in relation to emotionally disturbed children.

However, if the Department of Education and Science decides to accept the proposals put forward by a working party on handicapped children (*Living with Handicap*. Eds: Younghusband, Davie, Birchall and Kellmer Pringle),[1] then maladjusted children will lose their present group identity among other categories of children with handicaps. The working party's report recommends an extension of the present classification for children with behavioural and emotional problems: one group would be categorized as suffering from 'severe personality disorder' i.e., brain damage, and unrecoverable emotional deprivation, and another group categorized as suffering 'severe emotional handicap.'

Those who work in any treatment setting for maladjusted children will recognize the distinction. The first group are handicapped in the sense that they need a degree of specialized care, possibly in a protected environment both from the schooling and employment point of view. The care regime, whether it be a day or boarding-school, training centre or sheltered work-shop, children's or community home, may need to be highly structured and formalized. The second group include those children who can benefit and improve from psycho-therapeutic measures and specialized environmental treatment and training. The

1 Younghusband, E., Davie, R., Birchall, D. and Kellmer Pringle, M. L. 1970. *Living with Handicap*. Report of a working party on children with special needs. National Bureau for Co-operation in Child Care.

remedial care for these children is still subject to much experimentation in voluntary and local authority schools: some schools practise a high degree of permissiveness, others are almost claustrophobically formal; some are benevolently authoritarian, while others follow principles of 'self-government' in varying degrees. For this latter group, the options are still considered to be open for full recovery and for a reasonably satisfactory adjustment to normal society. Although both kinds of children are currently intermixed in any treatment setting for maladjusted children, it is the second group of children whom most workers have in mind when they make reference to the 'maladjusted child'. Changing the label 'maladjusted' has, however, implications that go beyond those of simple classificatory procedures.

The principle laid down in the 1944 Education Act, 'education according to age, ability and aptitude', as implemented for handicapped children under the Handicapped Pupils and School Health Service Regulations the following year. Maladjusted children were now a handicapped group for which local authorities had responsibility and for whom they could incur expenditure. Expenditure on such children prior to the 1944 Act had been mainly through an elastic interpretation of sections contained in other Acts. We have seen since then an extensive growth in the provision by local authorities of day and boarding schools for the maladjusted, the setting-up of training courses for teachers of the maladjusted and the award of recognized academic qualifications; also the growth of professional organizations. If the term 'maladjusted' loses favour at governmental level it is likely to fall into disuse at clinic and treatment level, and this will have implications for schools, for teachers and for those responsible for academic training.

## The Extent of the Problem

At the present time the Department of Education and Science recognizes some 105,209 children as having handicaps for which special education is being provided or who are awaiting placements. Just over 60,000 are educationally subnormal: between 9,000 and 12,000 fall into each of these categories—physically handicapped, delicate and maladjusted; and the remaining six categories, blind, partially-sighted, deaf, partially hearing, epileptic, and children with speech defects, are all grouped in numbers of less than 4,000 children per category. It can be seen, therefore, that except for the ESN children, all other categories apart from the maladjusted are of children whose primary handicap, *from the point of view of a system of classification*, is a physical disability. Furthermore, each disability is self-containing insofar that no one is likely to confuse deafness with blindness. These two terms, and others for the physically handicapped, are not interchangeable in our language. Even a layman can have some appreciation of the problems of rearing, educating, and employing a child who is blind or deaf. Simply knowing that a child is blind or deaf provides this kind of information: being told that a child is maladjusted does not provide this kind of information, but indeed, may conjure up all sorts of notions linked to words like delinquent, bohemian, or psychopath. Secondly, there is the problem that emotional maladjustment may be found among children in all the other categories. Some physically handicapped children have emotional problems just as severe as those children in the 'maladjusted' category who are without physical complications. Studies of education-

ally subnormal children in South Wales[2] and more recently in Bristol,[3] have shown that a third of all ESN children have associated emotional disturbance indicative of maladjustment as based on present methods of clinical assessment.

Thirdly, it is recognized that in order to plan services and make provision it is necessary to have some estimate of need in the community. For those with physical handicaps the problem becomes simply a question of counting heads. When the Department of Education and Science says that there are some 7,258 children with hearing disorders then this is likely to be a fair estimate of need: who would be bold enough to say that the 11,417 children deemed as maladjusted, and for which provision is made, is other than the tip of the iceberg in terms of need. This is not however, simply a question of provision, but of how we decide which disturbed children need help, the type of help they need, and the way we can mobilize existing facilities, psychiatric, psychological, and social-work, to maximize the help for those who require it and at the time they require it.[4]

## Research and the Maladjusted

Whereas physical handicaps are specific disorders, maladjustment is not a specific condition. It indicates a range of symptoms and emotional problems on a continuum of severity, requiring attention of some kind that is specific to each particular child in his own particular home and school setting, and calling for action at some particular stage in the child's progress to maturity.

What can research tell us about present-day needs in this field? The research contribution has come into its own in recent years with the publication of findings from two national follow-up studies. The first, under the direction of Dr J. W. B. Douglas, was started in 1946 and was originally aimed at examining the availability and effectiveness of ante-natal and maternity services in this country. Retrospective studies are never very satisfactory and here was an opportunity to follow up a national sample of children through school to adulthood. The second major study is still going on (National Child Development Study), and is a follow-up of some 17,000 children born in a single week in England, Scotland and Wales.[5] For the first time we have available to us information from a large sample of children in the normal population concerning their education, behavioural characteristics, social and physical development. So often in the past research has been concentrated on groups of children with known pathology, usually attending child guidance clinics, and accounts of their behaviour have often been considered to be the defining quality of their disorder, whether it be delinquency, neurosis or maladjustment. This limited kind of research produced absurdities because the question was never asked 'How

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2 Chazan, M. 1964. 'The Incidence and Nature of Maladjustment among Children in Schools for the Educationally Subnormal'. *Brit. J. Educ. Psychol.* Nov. Vol. XXXIV. Part 3.

3 Jones, N. J. and Walters, R. 1971. *Maladjustment in Senior ESN Schools in Bristol.* Report to the Bristol Education Committee.

4 Jones, N. J. 1971. 'The Brislington Project in Bristol.' *Special Education.* June.

5 Kellmer Pringle, M. L.; Butler, N. R. and Davie, R. 1966. *11,000 Seven-Year-Olds. Studies in Child Development*, Davie, R., Butler, N. R. and Goldstein, H. 1971. *From Birth to Seven.* Longmans.

frequently in the normal population are to be found some of the characteristics observed in the clinical groups ?', and even when it was, it could not be answered because there was then no normative data available for large groups of children in the community. To answer the question 'How, and How many, maladjusted ?' it is necessary to have some yardstick of normality. This is now becoming available. These larger studies, and some regional ones carried out in Buckinghamshire and the Isle of Wight, now provided us with a clearer picture of the incidence of maladjustment in normal school populations. Some 13 per cent of children in normal schools have symptoms that suggest maladjustment, and on investigation, some 6 per cent will need specialized attention if they are to grow satisfactorily to maturity. Although some of these children find their way into community homes, some into the care of the local authority children's department, a few into psychiatric units, there are still a considerable number without help. It must be remembered that the child guidance service only deals with less than 2 per cent of children in normal schools.

A clinical approach to maladjustment can be attempted by taking a brief look at some of the reports that have been issued since maladjusted children were first recognized by the DES. The 1945 Regulations defined them as 'pupils who show evidence of emotional instability and psychological disturbance.' They need 'special educational treatment in order to effect their personal, social or educational readjustment.' Again we have terms which have little meaning unless further elucidated. Who for instance, shows no signs of instability or disturbance in the course of a life-span yet for all intents and purposes would never be thought of as maladjusted ? The regulations emphasize that maladjusted children need help—they are not children who will of their own accord make the necessary adjustments—and it is this deeming of a child as maladjusted that allows a local authority to incur the necessary expenditure for some special educational facility.

Ten years later, the Committee on Maladjusted Children (Underwood Report, 1955), accepted that it has no 'novel insight into the nature of maladjustment, or new and even revolutionary ideas about the way it should be treated.' Nine years later a Scottish working party could only conclude that 'It would be misleading and dangerous to attempt to suggest specific, comprehensive criteria whereby any case of maladjustment might be recognized.'[6] In spite of this the Scottish working party were against abandoning the term maladjusted.

The Underwood report did, in fact, list those symptoms that are most commonly associated with maladjustment and it is usual to find three or more of these symptoms in any child that has been deemed maladjusted. Furthermore, the report drew attention to the incapacity of maladjusted children to give, and respond to, simple measures of affection and reassurance and that the truly maladjusted are not capable of improvement in their condition through ordinary methods of discipline.

## Maladjustment and the Schools

At last a definition begins to take shape in operative terms. Teachers in schools are well able to judge which children cannot accept normal

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6 *Ascertainment of Maladjusted Children.* Scottish Education Department. 1964

discipline and make satisfactory relationships with staff and other children. More recently, Graham and Rutter have reminded us that in assessing abnormal behaviour in children we must take account of the child's age before determining abnormality.[7]

From these selected descriptions, and there are numerous others, it is possible to attempt a working definition of maladjustment in two ways. We can say a child has symptoms and then ask a number of questions in relation to these symptoms. Are they severe? Are there many of them? Are they inappropriate for the age of the child? Are they of enduring nature? Are they such that without help of some kind they will not be modified? Are they causing distress and disturbance to the child's family or the community at large? An affirmative reply to these questions could bring us near to defining the maladjusted child. Alternatively, we could ask questions of the teachers. Is the child teachable in the normal classroom? Does the child make satisfactory personal relationships? Does the child accept affection and concern of other people as most children would? Can the child accept normal discipline? A negative reply to all these questions may give justification for thinking a child is maladjusted. Unfortunately some maladjusted children are selective as to where they show their disturbance: some at home, some at school; some to adult females, some to adult males. And in spite of this precision there are some odd children who need help but would not get it under any screening process as outlined above. Perhaps the labelling of any handicapped child might be abandoned and the words 'special', or in need of 'special education', is all that is wanted.

There are three levels at which this problem now has to be considered. First, in order to plan and make provision for handicapped children the government departments concerned need some kind of statistical return from local authorities, and this is the main justification for categorizing. Such a classification need only concern those in local authority departments whose job it is to make the statistical returns, and the central government departments themselves. At clinical level, and in relation to those being classified, it is not necessary to designate a child except as 'special'. The officer of the local authority whose task it is to do the designating could solve the statistical problem by adding after the word 'special' a letter which would relate to a group of children in the DES classification. This letter could refer to the primary handicap, and where applicable, a second letter could be added to indicate secondary handicaps. For example, a partially-hearing child could be documented as 'special A' while a maladjusted child as 'special E': a school for the partially-hearing with a high proportion of children designated as 'AE' may reach a stage where it would be more appropriate to appoint a further member of staff trained in the treatment of emotional disorders rather than one trained to work with deaf children.

This raises the second problem. Many special schools are established to cater for only one type of handicap, where in fact they could well manage a greater range of handicaps than at present. Special schools for children whose primary handicap is emotional disturbance could be designated as special schools for therapeutic education: schools

7 Graham, P. and Rutter, M. 1968. The Reliability and Validity of the Psychiatric Assessment of the Child: II Interviews with the Parent. *Brit. J. Psychiat.*, 114.

catering primarily for intellectual impairment could be designated special schools for cognitive education: and those whose primary handicap is physical as special schools for physical education. DES recognition could then be given to any of these three types of special school where the staffing and skills are of sufficient standard and expertise in the field in which the school is claiming recognition.

This raises the third problem: the training of staff to work in special education. It has to be recognized that no teacher can acquire skills and knowledge in relation to all handicaps but that a number of handicaps have problems in common. At the moment the one-year across-the-board courses do not enable teachers to specialize sufficiently: the one-year specialized courses restrict the scope of teachers whose expertise could well be utilized in relation to a number of handicaps. A compromise here would be for teachers to take their special diplomas in any one of the three disciplines outlined above giving greater flexibility for employment. Academic awards in therapeutic, cognitive, and physical education, may then find their reflection in professional bodies of the same name.

*In Denmark as in this country there have been developments and changes in the educational system during the past 20 years. Among the most important of them is the reorganization of Primary and Secondary Education, dating from 1958, which has involved the abolition of processes of selection before the age of 14. This article is mainly concerned with the role of the* Gymnasium *in the present system.*

# The Danish *Gymnasium*

G. S. V. PETTER and W. M. WHITE

**G. S. V. Petter** and **W. M. White**, both members of HM Inspectorate visited Denmark as guests of the Danish Government.

The Danish *gymnasium* bears some resemblance to a sixth form college in that it represents the last stage of secondary education. But at that point the resemblance ends and it is the essential differences which stand out in the memory. To begin with, it is a three year course which boys and girls undertake. Though the majority of them enter at the age of 16, it is possible for the ablest to enter at 15. At each stage of the three-year course, therefore, there are two age groups involved. Secondly, entry to the *gymnasium* is determined not by the receiving school but by the school from which the pupil will go on if successful. Lastly, the course is considerably broader than that at present pursued either in a sixth form or by a similar age group in a college of further education.

## The Secondary System

Without going into laborious details, it is necessary to put the *gymnasium* into its proper context in the whole Danish system. Education in Denmark is compulsory between the ages of seven and 14, but a parliamentary decision of 1969 provides for the extension of compulsory education to 15 in 1972/3 and 16 in 1973/4. To quote a Ministry publication, 'Freedom in education allowing for co-existence of a public educational service and private schools receiving state aid subject to supervision, is a basic principle in Denmark.' To a visitor the public and private sectors are distinguishable only in as much as there may be a marginal snob value in attending a private school, and certainly, there are both heads and teachers in state schools in Denmark who are conscious of parental discrimination in favour of a private school. Both types of school are in the same relationship to the Ministry which exercises a benevolent and liberally interpreted control over the school curriculum.

The compulsory school years are spent in the elementary school where promotion is by age, and where there is no streaming and no external examinations. In the last 2 years of the course foreign languages and mathematics are introduced but, so it is understood, the principle of no streaming continues.

At the age of 14 the system becomes bilateral. A percentage, estimated at something between 42 and 50, go into the *real* classes and the

remainder into what are known as the 8th, 9th and 10th forms. Both routes represent a lower secondary stage, but only from the *real* classes is later entry into the *gymnasium* possible. Although we are concerned here with the future entrants to the *gymnasium*, it is worth mentioning that a good deal of thought is going on about provision of worthwhile courses for the 8th, 9th and 10th forms. A magnificently equipped central school in Kastrup, on the outskirts of Copenhagen, concentrates within it all of the members of the 8th, 9th and 10th classes in the district. Its practical rooms and engineering shops have been designed and built on a scale only to be found in this country at a college of further education. Attendance is high: 75 per cent stay for the full course. If thinking on 'Newsom' lines does not appear to have gone very far in Denmark, the planners have certainly set their sights high.

Boys and girls who enter the *real* classes take a three-year course which includes English, German, mathematics and science subjects, with Latin and French as options in the 3rd year. These *real* classes are sometimes attached to a *gymnasium* and sometimes comprise the upper forms of a *folkschool*, that is, a school extending from 7–16. It seems probable that in the course of the time the 7–16 school will become common form, partly as a matter of democratic principle and sometimes because pressure of accommodation on the *gymnasium* may make the detachment of the *real* classes a sensible idea. A process of selection exists between the *real* classes and the 8th, 9th and 10th form and also, later, for the *gymnasium*, but the process appears to be remarkably free from undesirable pressures. Assessments and advice are given by the lower sector and the system admits of two-way flexibility. Marginal pupils can transfer to courses more demanding than those thought appropriate, but survival there depends upon performance justifying ambition; on the other hand, later development is catered for through transfer which commonly involves the loss of one year.

The atmosphere in the *folkschool* is pleasant, friendly, and relaxed though the teaching methods may seem somewhat formal. Indeed, if the English visitor notices the absence of downward pressure of public examination in Denmark, he also becomes aware that the thinking which has influenced primary education in England during the last 20 years does not appear to have its parallel in Denmark. Some teachers, however, in *folkschools* in country districts, tend to be pre-occupied with the same sort of arguments that are exercising the minds of many English teachers in comprehensive and secondary modern schools. One can for instance hear criticism of the *gymnasium* system—that it concentrates too much on purely academic work and does too little for boys and girls as human beings. Some say that the curriculum in the *gymnasium* is too rigid.

## The Curriculum

The curriculum of the Danish *gymnasium* is governed by regulations produced by the Ministry of Education which also issues a book of guidance to schools and teachers. The 20 per cent or so of boys and girls who enter, the best at 15, the others at 16, make a choice between two 'lines'. One is a language line and the other a mathematics line. Each line is sub-divided into three branches: thus

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|---|---|
| A linguistics line: | modern languages branch |
| | classical languages branch |
| | civics branch |

A mathematics line: mathematics/physics branch
natural science branch
civics branch

In a 31 period week, all pupils do religion (1), Danish (4), French or Russian (5 in 1st year, 3 in 2nd, 4 in 3rd), classical antiquities (1 in 1st year), history (4 in 1st year, otherwise 3), geography (2 in 1st year, 1 or 2 in 2nd), physical education (3), music or art and art appreciation (1 or 2). Boys and girls following the linguistics line must do 3 periods of mathematics in their first 2 years and 4 periods of biology in their last year. By the same token, those following the mathematics line have to do English or German for two years (4 periods in the 1st year and 3 in the 2nd) as well as French or Russian.

This spread of subjects naturally means that the time allocation for each branch of study is less than would be found in an English sixth form. Only those studying Greek with classical antiquities have as many as eight periods (of 50 minutes) allotted to them. Pure mathematicians never have more than six periods of their own subject, and for modern linguists the average per language is four.

On the other hand, aesthetic subjects appear to be treated rather meagrely in a curriculum otherwise impressive for the scope and balance of the diet offered.

The civics branch of both lines exists in theory but not in practice because the teachers have yet to be trained and prepared to develop this particular facet on the course. The principal ingredients of the new civics course are as follows:—

The family as a social group and as a legal and economic phenomenon;
The economic and social structure of society;
Factors determining the culture of a society and of cultural groups;
Political attitudes of individuals and groups and the political theories underlying them;
Political structure and political process involving international comparisons;
Finally, Denmark's internal political problems and her international relations.

A degree in politics, philosophy and economics, coupled perhaps with a degree in sociology are thought to be the academic qualifications needed to tackle these significant and complex themes with young people. Indeed, it seems eminently wise of the Danes to lay down a blue-print for the new addition to the curriculum structure, but to postpone the introduction of civics until properly equipped teachers are available to undertake this responsibility.

Though it is possible in very general terms to discover the content of syllabii in individual branches of study, it is neither possible nor appropriate for English visitors, after a brief stay in Denmark, to compare either the quality of work in the classroom or the achievement of students with that of their English counterparts. In mathematics, the ground covered and the depth of treatment in the student examinations appears to be similar to that of the single subject in our A-level examination. History, a compulsory subject for all, is examined orally no written examination takes place.

What is really significant is that the study of history is clearly regarded as central and not peripheral to the curriculum. The attitude of these

older boys and girls, their capacity in discussion, the depth and extent of their reading—all these are impressive. In one school, syllabus content (and there is a considerable area of choice available), includes, in the first year, Roman civilization and the early Middle Ages, in the second year the Reformation, Absolutism in Europe and the economic history of Europe from 1900, and in the third year a course of world history from 1925 to the present day. A weekly period of civics is compulsory in the third year though this must not be confused with the specialist branch to be introduced at a later date.

## Examinations

Techniques of assessment and the administration of the system are both interesting and intriguing. In Danish language and literature the examination is both written and oral; the same applies for English, German, Latin, mathematics and natural sciences if taken as specialisms. In all other cases the examination is oral. This applies to history, geograhpy, Greek, Russian, mathematics and biology for arts pupils, and English for mathematicians and scientists. In art and art appreciation there is no examination, but in music, taken as a specialist subject in the linguistic branch, the examination is both written and oral.

The student knows well in advance which of his subjects will be examined on paper, but he does not know until within a short time before the examination which will be orally tested. He knows that both his teachers and external examiners will be involved in assessing his achievement. There are no doubt question spotters, artful dodgers and the inevitable quota of young people who will gamble on what oral examinations will not in the event take place. The choice of subjects for oral examinations is subject to regional variation and is not decided nationally. Most important of all, the student knows that everything he has done will count towards his final score, so there is every inducement for him to apply his energies over the whole of his study.

A composite view of separate subject assessments is arrived at through the 'Rule of 13'. In both written and oral examinations a 10 point scale is used, with marks of 0,3,5,6,7,8,9,10,11,13. 0 and 13 are rarely awarded, 3 representing a very poor performance while 11 reflects work of distinction, with 8 as an average achievement. Two criteria must then be satisfied; the average of all marks must be at least 5.5 and the two lowest marks together with the average of the remainder must total 13. Thus a student who scored 0 and 3 in his worst subjects would require an average of 10 for the remainder while two 3s would necessitate a residual average of 7. This system appears to be acceptable to all concerned and its effect is to permit compensation for weakness in one or two subjects but to exact a higher performance in all others.

But if the Danes are satisfied with their techniques of examination, they are not satisfied either that the content of the course or that the traditional pattern of public examinations any longer meets the requirements of the growing generation of Danes. They have recently introduced a 'higher preparatory examination' as an alternative to the examination which determines entry into the *gymnasium*. This examination has already considerable support among more progressive Danish teachers because, instead of prescribing a diet in terms of subjects to be studied, it lays down a common core of subjects to

which options may be added. If established patterns in secondary education have in the past tended to favour the more able, the introduction of the higher preparatory examination represents an attempt to provide a target for a very much wider range.

## Contrasts and Comparisons

The idea of offering a wider variety of choice than traditional patterns allow is also reflected in current thinking about the curriculum in the *gymnasium* itself. It would be inappropriate to attempt to guess at the precise nature of the changes in anticipation of a governmental announcement in 1971. Nevertheless, it seems clear that Swedish thinking is having influence in Denmark in that there is a good deal of talk about the student's right to free choice in making up his programme. There seems to be some agreement that the essential link between arts and sciences should be preserved for at least two years of the *gymnasium* course, but a completely new element might take the form of a range of optional subjects in addition to certain compulsory, core subjects and the study of one subject in considerable depth.

One immediate effect of the adoption of this policy would be a drastic change in organization. At present, boys and girls work in classes which move up the school as units, each class doing the same curriculum. Under the new dispensation the class as a unit would eventually disappear; every individual pupil would have his own programme and the class system would be replaced by setting. But all this is mere conjecture—it will be fascinating to see what in fact transpires.

*Museums and art galleries exist to conserve and display. Increasingly, as this review article points out, they are assuming a more positive role.*

# Museums in Education

GILLIAN SPENCER

**Gillian Spencer** is Education Officer at the Castle Museum, Norwich.

There is good reason to suppose that at least half the adult visits to museums are casual ones, superficial in their aims and results. The proportion of the population able to use museums as sources of information and enjoyment similar to libraries is small, partly because they have not been trained to study material objects and works of art as they are taught to use books. The amount of pleasure and enlightenment that people receive from museums is therefore much smaller than it should be and yet the majority of our museums and galleries are supported by public money, either through the Treasury and Department of Education and Science in the case of national museums or through the local rates in the case of those in the provinces.

It would be wrong to assume from this that museums are making no efforts to correct this situation. Since the Second World War considerable progress has been made in redesigning displays to make them attractive and comprehensible, in producing attractive publications and in appointing staff with the specific function of developing the vast educational potential of our museums and art galleries. Not even the most recondite of our institutions would now assert that its duty to education is complete when the needs of the scholar have been met. All now accept that students, both adults and young people, have a claim upon the museum's time and resources. The DES survey *Museums in Education** lists in detail the varied educational provision made by 21 institutions. As an Appendix we have the Museums Association's list of museums and galleries in the British Isles which provide specific education services.

Nevertheless the position is far from satisfactory. Museum education services have grown up haphazardly, and vary according to the preconceptions of their original founders. There is virtually no agreement among museum educationists beyond the most bland and unimpeachable platitudes about the aims of museum education and the means by which it should be carried out. The education department of most museums is still very much a Cinderella, short of space, status, money and staff; hovering, sometimes unhappily, between the needs of schools and colleges and the exigencies of museum life, attempting to interpret the one side to the other and by no means always succeeding. Moreover museum education services, like lively and attractive museums, are by no means evenly spread about the country.

Many of the problems in developing museum education services stem from lack of money for museums and galleries as a whole. The prime

* Education Survey No. 12. *Museums in Education.* HMSO, 1971.

function of a museum is the preservation in good order of objects and works of art which are of value to humanity generally and, what is often less well understood, the raw material of some branches of scholarship such as geology, archaeology and the history of art. Many museum directors are faced with hard choices and it is not surprising if they have tended to sacrifice education to conservation. While accepting that some comparison may justly be made between libraries and museums, they are anxious that educationists should recognize the essential unrepeatability of most museum objects.

Lack of money is not the whole story. Failures of understanding still occur between curatorial and education staff in museums. Museum specialists sometimes find it hard to accept education has its own skills. When the increasing number of open-minded curatorial staff find time to try their own hand either with adult education or with young people, they discover both that skills are needed and that an increased awareness of communication problems can benefit their display techniques. Education staff in their turn have a responsibility to understand the aims and cares of the curatorial staff so that their work harmonizes with the general work of the museum. It helps if they either have had or can acquire some first hand experience of curatorial work so that attitudes of mutual trust and understanding can develop, for any conflict is more apparent than real. The DES survey specifically recommends that education staff should have a similar status and salary structure to curatorial staff.

The need for space for educational work is stressed; nothing is more scarce in museums, yet, the sacrifice of some square feet of display space to provide teaching rooms, lecture theatres, and equally important, restaurant facilities and lavatory accommodation, may well pay handsome dividends in public interest and support. Moreover space allotted for the proper conduct of museum education has the valuable effect of cutting down overcrowding in the public galleries. The British Museum Trustees in their plans for new building have recognized the importance of these facilities and it is to be hoped their lead will be generally followed elsewhere.

## Educational Developments

The DES survey lists the different means of education adopted in the institutions they have studied but without making any comparisons as to their relative usefulness. A few comparisons will be attempted here. The oldest means of museum education is the public lecture and the guided tour. While no-one would suggest that the demand for these is likely to disappear, they may not be the best means, particularly for children and young people, to acquire real knowledge or an understanding of how to use museums. They are essentially passive and can too often produce the illusion of having learned something without the reality. Guided tours in particular can fail badly unless the numbers in each group are small and they suffer from the disadvantage that they usually take place entirely in the public galleries where distractions are many.

The two main alternatives are museum teaching as distinct from public lectures and sending the museum out to the people in the form of travelling exhibitions and school loan services. The survey deals with the two latter under one heading. They are really very different.

Among travelling exhibitions those devised by the Circulation Department of the Victoria and Albert Museum have been for many years pre-eminent. How excellent if each national museum had a similar department so that the great wealth of London and other capital cities could be more readily shared and enjoyed. However exhibitions of this quality are too valuable to be set up elsewhere than in well established and properly staffed museums in the provinces. H.M. Inspectors suggest that in new towns and others without adequate museums and galleries, exhibition halls might be set up to house such exhibitions. Superficially attractive, in practice this plan might not prove as stimulating and reviving as one might hope. Exhibitions set up by experts and then, as it were, left about, tend to go dead. They need to be part of living institutions run by people who really care about them. At present an alternative to museums and galleries for this purpose scarcely exists. There is unlikely to be any cheap way out. The final satisfactory answer will surely be a rationalized and regionalized museum service for the country as a whole as envisaged by the Museums Association.

School loan services are a different matter. That they are a good thing has hardly been questioned in this country. A large number of museums both large and small have a school loan collection, even if they do not provide a teaching service. The principle is that museum material not of the first or even second importance is packed up into travelling cases, sometimes in the form of fixed miniature exhibitions, sometimes as single objects, sometimes as boxes of material suitable for handling. While the museum service for the country as a whole is so uneven, such schemes will have their place and it is probable that there will always be a need for loan collections of beautiful objects which need time and leisure for their appreciation. Nevertheless it may be time that some of the disadvantages of school loan schemes should be considered. Most museum loan collections contain a fair proportion of material more correctly described as visual aids than museum material. It seems likely that this aspect of museum loan services will be taken over ultimately by curriculum resources centres. Fixed displays are inflexible and cannot be adjusted easily to the differing needs of varying ages and abilities. Handling specimens are better, but the material is bound to be far from the best. It is not the prime task of teachers in schools to understand museum material in any detail and in the case of history teachers, for instance, their training may have been almost entirely verbal and literary. This may limit their capacity to act as interpreters between child and object. School loan services are expensive to run. The serried ranks of cases look well upon the shelves, but museums in centres with good transport facilities may like to consider whether the money might not be better spent upon museum teachers, whose whole business is to understand the museum and find means of interpreting it to young people.

## Museum Teaching

The essence of museum teaching is that it should bring the students into close contact with the museum material while at the same time teaching them how to use the displays. With the right kind of teaching rooms and equipment and controlled conditions under which young people can examine, handle and draw much better material than can be sent to the schools in boxes. School visits can become learning sessions

going well beyond the primitive thrill of handling, say, a New Stone Age farmer's tree-felling axe or fitting on a Roman ring. Whole sets of material can be sorted out by young people so that they can begin to appreciate for themselves what, for instance, objects made in the past can tell them about the people who used them. They can begin to see how the materials and tools available limit what can be made, how the shape of things is not accidental but fitted to particular purposes. They can begin to acquire a healthy respect for their ancestors which may break down that deadly popular view of the past as 'quaint' which, by dehumanizing the people of the past makes it impossible to learn from their experience. The museum teacher has a delicate role. He must not merely give a lecture with three dimentional illustrations but must devise means for the students to observe for themselves and by giving vital information at the right moment enable them to make correct deductions. This sort of close study needs to be followed by a session with the relevant displays which should now have more meaning. Much talking in galleries should be avoided but work devised which will lead the students in the skill of 'reading' displays. Such work should not be mere training in how to read a museum label but should require thought and research, not just 'Draw a Roman ring' but 'What can you find which shows that there were Christians in our part of the world in Roman times?'

When groups can come for a series of such museum learning sessions their skill improves rapidly. At first puzzled they soon learn that every detail read correctly has a meaning. Some children whom their teachers regard as not especially bright may show unusual insights and sensibilities, while 'clever' children sometimes have to be persuaded to abandon preconceived literary notions in favour of the evidence of their own eyes.

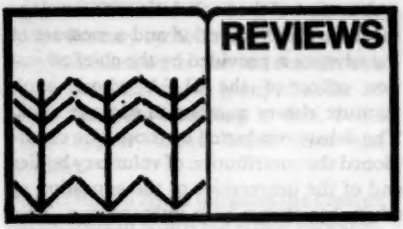
This kind of museum teaching is expensive of time and space but its results are encouraging. It is deep and solid not superficial. It can easily cross subject boundaries. Its very antithesis and enemy is the 'day-out' approach, from which the London museums suffer most acutely. Museums in the provinces also suffer, but they are better placed to develop the kind of teaching described above. It is easier to get to know the teachers of the area and to fit museum sessions in with what is going on in school. It is possible to get to know the children and see them working at different levels as they grow up and coming to accept the museum as a regular part of their lives. More and more teachers realize that museums have something to offer but very few have received any guidance in training on how to use museums, [and those who have not given the matter thought discover a distressing ignorance once they arrive with the children and may be heard losing their party's attention with remarkable speed as they amble without prearranged plan from one display to another. It is quite common for teachers to decide to 'do' the whole of a huge museum, or even several museums in one day. The results in boredom and exhaustion are sad indeed. There must be an answer to this problem.]

The DES survey concludes that the use of museums must be included in the training of teachers. It will never be possible or even desirable for every school part to receive personal attention from museum education staff. It follows that there must be practice in planning museum visits, in deciding what aspects to use and what to ignore

for the present, in devising preparatory and follow-up work and in deciding on a few sensible tasks to be done in the museum itself. Some museums make it a practice to hand out standardized quiz-sheets to visiting school parties who are not to have a museum lesson or guided tour. Such standardized productions can never meet individual needs and often serve as little more than devices for keeping children out of mischief. Surely teachers will do better to devise their own. There are of course a fair number of teachers who undertand all this already and who are making enlightened experiments of their own in teacher conducted visits but as yet this is the exception not the rule.

It would be a sad thing though if all that museums can offer to children and young people were chanelled through the schools. Leisure-time activities provided by some of the institutions included in the DES survey have a special value; there must always be room for what has been inelegantly, but eloquently, described as the 'Aha!' experience, the unplanned illumination or moment of delight. Museum teachers must not be so bogged down in routine work that they have no time left to contrive space, time, freedom and a welcome for children on their own voyages of discovery.

The survey deals with the question of museums and adult education. A good deal of work is done in this field usually by curatorial staff but it is noted that less is done outside London than might be expected. Handicaps to the further extension of this work are pressure on staff time and museum teaching space, and the need for extra attendants after normal hours. It will surely be worthwhile to overcome these problems for if museum education for children and young people is extended there should in due course be a demand from adults for greater knowledge in a more advanced form of what museums and galleries have to offer.




## The British Academic

A. H. Halsey and Martin Trow

*Faber and Faber £5*

This important study has had a gestation period rather longer than that of an elephant and the result is certainly large; but there the similarity ends, for the treatment, far from being 'elephantine' in the pejorative sense, is clear, incisive and stimulating, and the book makes compulsive reading. It has also been suggested that the work is a white elephant, in that because the study was conducted in 1964, its findings are by now out-of-date and irrelevant. This is to ignore the quite brilliant historical introduction which shows just how much the British Academic of 1964 grew naturally out of the developments of the previous 100 years. This makes extrapolation over a further decade a reasonable exercise. Just how little has changed may be illustrated by the Bishop of Exeter's statement in the 1830's that 'to establish a university from the Chapter (of Durham) incomes was unwise, for it would only increase discontent in the country and add to the excess of educated people for whom there were already too few positions'. In contrast, the author's statement that 'with their heavy concentration on engineering and the applied sciences and their keenness to develop the sandwich type of course, the colleges of advanced technology have in some respects a greater claim to newness than the new universities' is more likely to find general acceptance in the 1990's than today.

One of the main theses of the book is that, in spite of all the influence of von Humboldt on the development of the civic universities, there is a distinctive English ideal of a university, based firmly on Oxbridge tradition, partly real and partly imagined, which can be summed up in the six concepts of antiquity, cosmopolitanism, selectivity, 'education', domesticity and intimacy. The authors go on to document how this is combined with a powerful application of the 'Matthew principle' (for unto everyone that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath). It is not surprising that radical innovation near the bottom of the pecking order becomes a thankless and unhopeful task. Polytechnics beware!

The main part of the work concerns the attitudes of individual academics. This close packed study cannot be summarized, it must be read, and so it must suffice here to draw attention to some of the most important findings. The majority of teachers think that 'more' has meant neither better nor worse, but at the same time the majority also views mass higher education with apprehension. The weights to be given to teaching and research vary significantly between subject groups, and in particular there are some perceptive and worrying remarks on the lack of importance attached to research by technologists. There is a strong consensus of opinion that departments should be run by circulating chairmen and not by permanent heads of departments, and an overwhelming feeling (shared by 46 per cent even of the professoriate) that redbrick universities are dominated by professorial oligarchy. The authors comment that 'freedom for research flourishes in the cracks between the flagstones of institutional authority; and the more flag-stones, the more cracks; the more professors, and the more diluted their power, the greater the autonomy of their subordinates'. They might have said the same about teaching, with as much justification. Finally, the section on political and religious leanings of academics and their relation to parental background deserves a book of its own.

Anyone who wishes to effect radical changes in the system of high education in this country should keep this book permanently by his bedside. But if he also wishes to sleep well, he should not read it late at night. *L.R.B.E.*

## Aims and Actions in Adult Education, 1921–1971

Ed. E. M. Hutchinson

*National Institute of Adult Education, price £1.50 net.*

If one should wish to read on the subject of aims and ideals in education the searching reflections of some mature and distinguished scholars and teachers, there could be no better choice than this short volume. The clarity and charm with which the ideas of men such as Sir Ernest Barker, Sir Richard Livingstone, Lord Lindsay, Lord Morris of Grasmere and Professor Ross Waller are expressed in the essays and addresses included here, make reading about education an unusual joy. For this reason alone it was a notable effort of the National Institute of Adult Education and of its retiring secretary, who has served it so well for a quarter of a century, to produce a small selection from the pages of its journal *Adult Education*.

The editor begins with history. He and Sir Emrys Williams, that extraordinary midwife to educational enterprises, describe the work of the Institute, under its two names and constitutions, from the London meeting, convened by Mansbridge and Lord Haldane in 1921, to the present day. Williams deals in some detail with his pre-war 'Art for the People' scheme, followed by the war-time CEMA and the post-war Arts Council. Hutchinson particularly emphasises 'the indispensable role of local education authorities with their dual responsibilities for direct provision of adult education and for facilitating the work of other bodies'. The Institute in recent years is described as 'alert to register and publicise innovations'. This remark can serve as a modest but entirely truthful assessment of Dr Hutchinson's work. His boyish enthusiasm and shrewd administrative sense made up a rare combination of qualities to be found in one man. By his personal alertness and inexhaustible energy the cause of adult education in British society and the reputation of British adult education in other societies have both been immensely advanced in the past 20 years.

A section of the book deals with developments during this period and a measure of the advance is provided by the chief education officer of the ILEA whose adult institute classes number 14,000 per week. The debate conducted by those who championed the contribution of voluntary bodies and of the universities to the education of adults has always been introspective. This tradition is reflected in several contributions and notably also by the Director of Education for Cumberland. He indicates the hesitancy and lack of conviction which have characterised the attitudes of authority to adult education, the recurrent question—is this a marginal service or a basic necessity on which the psychological health of the community depends?

In a final section two evening institute principals and one student speak for themselves with some fine bursts of eloquence and insight. Who but a mature student, qualifying for entry to a university not in this case by membership of a tutorial class but by 'solitary study', would have written —'as the days of "schools" progressed the first anxiety was replaced by a weary self-contempt that I should tackle good papers so foolishly'—not, one would suppose, very many members of the NUS today.

In the one aspect of education with which this book deals resistance to the cost benefit analysis approach to planning is at its firmest. It is not, as Charles Morris pointed out in 1952, any specific return in terms of utility or service to the community by which efforts in adult education should be judged. Education means growth and change, curiosity and the satisfaction of the will to learn. 'The State', wrote Sir Ernest Barker twenty years earlier, 'which began in war and continued in wealth must one day live for wisdom.' The State has not done that much for the permanent, continuing education of adults in this country but what it has done since 1921 is not negligible, as this book shows, and the best of it has happened because there were voices constantly raised on behalf of activities which might bring wisdom, judgment and *joie de vivre* rather than affluence or power.

D.M.H.

Since January 1966, Trends in Education has published some 300 articles. In this index these have been grouped under 26 main headings according to title. Some titles appear under more than one heading.

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